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FORMERLY

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The late John Hill—publisher of several weekly trade papers--leaders in their respective fields—wrote a series of sermonettes on the value of advertising. The following is one of them:

"The paper that can hold its own and make enough of a show to get ***New*** readers in the Habit of Subscribing is a bird and the one you need to get next to."

New readers of the AMERICAN GAS ENGINEERING JOURNAL have acquired that habit of their own accord. A **30%** increase has been made in the paid subscription total of the Journal in the past year without the necessity of employing one solicitor, all at the full subscription price of $3 per year.

American Gas Engineering Journal

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KOPPERS

BY-PRODUCT
COKE AND GAS OVENS

The most efficient method of carbonizing coal is in KOPPERS OVENS and the best coke and by-products are produced by this process.

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Specially Designed Roaster for Starch Gives Gas First Place as Fuel for Making Dextrine

When Gas Displaces Steam Roasters Output of Oven is Doubled—Skillful Salesmanship and Willing Experimentation by Gas Company Lead to Other Gas Equipment and Tend Toward Making Plant All-Gas One

By S. E. WARDELL

The sealing of an envelope or the sticking of a postage stamp is an every-day occurrence with most of us, yet it is not probable from this little act the thought of an increased industrial load for the gas company would dawn upon us. However, the Public Service Gas Company of New Jersey, through its industrial fuel division at Paterson, N. J., has considerably increased its load and is working many economies for one of the most well-known dextrine, mucilage and gum manufacturers in the East. Besides the first-mentioned uses, dextrine is also in demand for labels, for stiffening cotton goods to prepare them for printing, for sizing paper, and for the confectionery trade in making lozenges. Some two years ago the name of a dextrine manufacturer appeared on the prospect list of the Public Service Gas Company, and it is this manufacturer who co-operated with the gas company during the experimental stage of the installation at its plant and is to-day a satisfied user of gas.

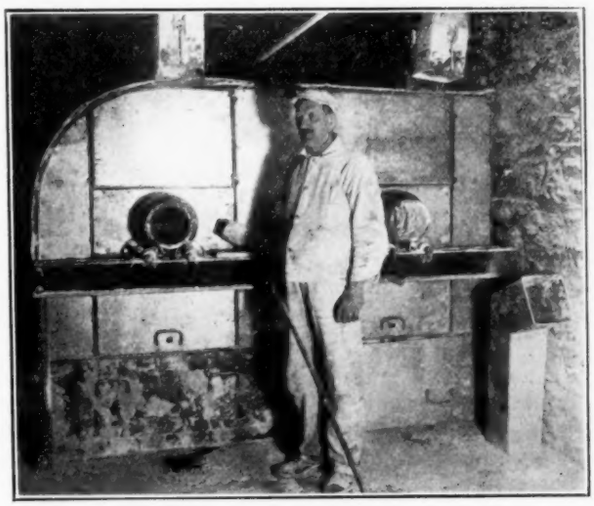


FIG. 1—VIEW OF ONE OF THE DOUBLE-DRUM GAS-FIRED ROASTERS, SHOWING OVERHEAD CHUTES USED IN LOADING DRUMS THROUGH CIRCULAR OPENINGS. SAME OPENING USED AS AIR VENTS DURING OPERATION

Where Persistent Salesmanship Counted

Much credit is due the gas company's industrial fuel representative, Edgar Atherton, for the success so far attained in this plant. Many of his visits brought the response of "not particularly interested" which usually comes from the half-satisfied coal user. It might be well to note right here that the coal shortage lent no helping hand with this sale, as it had not shown itself at that time. But the subject of house heating by gas did interest the factory owner, with the result that his home was thus equipped. This stepping stone and the satisfaction it rendered made far more effective the suggestion of equipping the plant with gas-fired roasters. The word to go ahead was finally received and the market scoured for a roaster applicable to the needs, but with no success.

Col. W. H. Rogers and Fred Tuttle, general industrial fuel representatives of the Public Service Gas Company, were then called in with the result that a specially designed roaster was constructed for experiment. Many difficulties were encountered at this point, as starch for this purpose must be most carefully roasted or the proper result is not obtained. The first design was discarded, as it was found the starch burned at one end of the roasting drum. This was, however, remedied, and now two roasters are giving 24-hour-per-day service, while more are being constructed.

A combination description of the entire process and the gas equipment which the company is installing at each successive step will probably give the

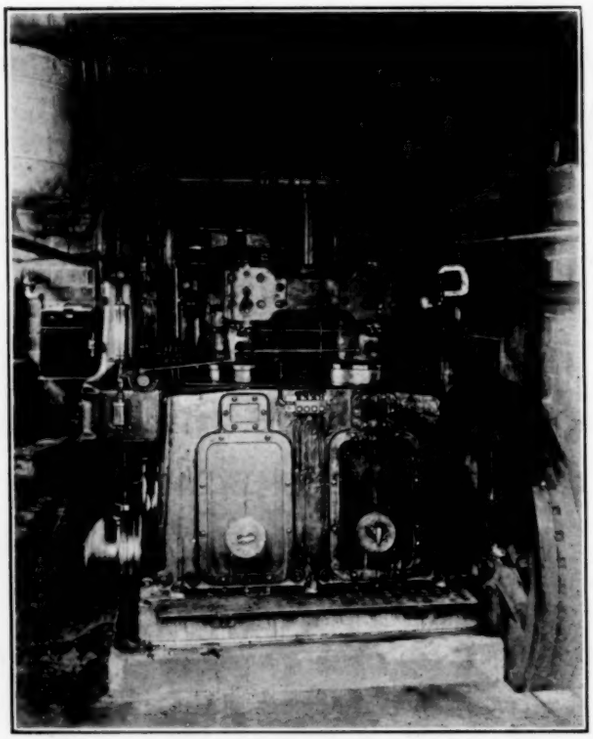


FIG. 2—TWO-CYLINDER GAS ENGINE, 60 HP., USED TO OPERATE SPECIAL PASTE-MAKING MACHINERY

reader the most intelligent resume of the installation.

Preparing Starch for Dextrine

Dextrine resembles gum arabic and has many of its properties, but differs remarkably in one, from which it derives its name, that of turning the plane of polarization to the right when polarized light is passed through a solution of it instead of to the left, which is the case when a solution of gum arabic is used.

It may be made by a number of methods, but the one we are concerned with here is by carefully roasting starch in revolving cylinders. Corn starch is used a good deal because of its cheapness, while potato starch is used to make library and other white pastes, but neither is used in such quantities as tapioca, the latter being originally obtained from the rootstocks of the cassava plant of tropical growth. The starch is received from a near-by railroad siding, bagged in the pulverized form.

Roaster Equipment—Converted and Being Converted

That part of the starch which is to be used for dextrine and gums is conveyed to the roasting ovens. Here one finds fourteen roasters, two already using gas, two being installed for gas, and ten coal-fired, which one by one will be replaced by the gas-fired type, and the old ovens, although they may remain in place, will only be used for special jobs and in an emergency

The two gas-fired roasters which are in operation each consist of a steel shell, well insulated, in which revolves a cylindrical drum, heated by two double-drilled atmospheric burners; each burner being 6 ft. long and having a gas consumption of 120 cu. ft. per hour.

Each drum holds four bags of 285 lb. each, or 1,140 lb. The time consumed for the proper roasting of the starch is from ten to twelve hours, the heat being kept at approximately 400 deg. Fahr. During the first few hours of the roast both burners are used, and then only one, which saves considerable fuel.

It is planned to use a different type of burner on the two now under construction; that is, a blast type in place of the atmospheric. This will necessitate the installation of a pressure blower, and undoubtedly the burners on the two gas roasters now in operation will be changed to this type to take advantage of the fuel saving they offer.

A double-drum roaster may be seen in Fig. 1. The operator is about to remove the roasted starch through the outlet doors, the handles of which may be clearly seen. The L-shaped pipe shown at the right snugly fits the overhead loading chutes and forms the connection with the circular openings.

Inefficiency of Old-Type Roasters

The difficulty experienced with the coal-fired roasters rested in the fact that each drum had to have an oil jacket. These jackets very frequently sprung leaks, and endless trouble followed. The brickwork of the fire bed had to be removed and the oven practically reconstructed. The length of time for the bake in these ovens is from eight to ten hours, but it must be noted that they have only one-half the capacity of the gas roasters, yet they occupy equal space. The roasters which gave the most trouble and lowered the efficiency of the plant were of the steam-heated type. These demanded constant attendance, and even at that an unvarying temperature was practically impossible. The superiority of any industrial gas apparatus, as we know, lies in temperature control, so it was most logical that the gas company should begin with the conversion of this type roaster first.

Paste-Making Equipment to Be Operated by 60-Hp. Gas Engine

The many different kinds of gums and pastes require varying types of machinery. For the white paste we so often find on the desk and in the library a new equipment is now being installed at this plant which will eliminate the old heated pipe system, conserve space and decrease the drying and roasting time. This consists of a very large cylinder, the interior construction of which is a series of revolving paddles which keep the starch in constant motion. This steam-jacketed machine is to be driven by means of a 60-hp., two-cylinder Warren gas engine, as shown in Fig. 2, which has a gas consumption of 20 cu. ft. per horsepower per hour. In addition a small 4-hp. gas engine has been installed to operate a Goulds pump in connection with a condenser.

The starch having been roasted for the proper length of time emits the odor of strongly baked bread and presents a light brown color. It is then

in an intermediate stage between starch and grape sugar.

The next process is that of refining. This is accomplished in a bolter which sifts and separates all the foreign substances, the machine being similar to those used in milling flour.

Much of the company's output is shipped in the dry state, but that part which is made into a liquid or viscous form passes on and is heated with water in steam caldrons. At this point the gas company is expecting to install a gasteam boiler to accomplish this operation. In fact, the entire coal-fired steam equipment of the plant is to be converted to gas equipment.

The superintendent of the plant summed up the advantages of gas briefly by saying it provides an even regulation of the heat, which no other fuel could do, and that it doubled the capacity of the roasters. Although the output of the plant was good previously, a considerable increase is now being made possible through the gas equipment.

The author is indebted to the industrial fuel division of the Public Service Gas Company of New Jersey for its assistance and co-operation in the preparation of this article and for the use of the photographs.

How the Purchasing Departments May Determine if They are Purchasing Quantity or Quality

Tests for Determining the Accuracy of Manufacturers' Claims—Economies that in the Long Run are Expensive

By AN EXPERIENCED MANAGER AND GAS ENGINEER

EDITOR'S NOTE: *The primary object sought in seeking out and selecting the articles published in the* AMERICAN GAS ENGINEERING JOURNAL *is that they be practical. To attain this end it is the* JOURNAL'S *belief that they must be written by those who are actively engaged in such work as will familiarize them thoroughly with the ins and outs of the subjects with which they deal.*

This article is one of the kind we like most to publish. Its author is well known in this office and in the gas industry. He is well qualified to speak on the subject he discusses, and he speaks from the shoulder. There may be many who will disagree with his conclusions, but this is a matter of opinion. If we all agreed on every subject there would be no progress. Nevertheless, there are suggestions of real value contained in the article. It bristles with them. It should be read by every gas man whose horizon is not bounded by the confines of a single department.

One subject in operating gas companies that ought to receive more attention than it has heretofore, is the subject of purchasing supplies. The management of every gas company ought to ask itself these questions:

Are we purchasing quality, or are we purchasing quantity?

Are we buying the best for our consumers and our plants, and getting value received?

Are we positive that the appliances and accessories we are purchasing for our consumers are the best?

Are we positive that the installation of these different appliances and accessories will give the consumer full value, dollar for dollar, and at the same time assure us that it will give the highest rate of efficiency at a minimum cost, and not increase our gratituous work?

Are you buying to standardize, or are you buying anything and everything?

RULES FOR PURCHASING

All of these questions must be considered, and the writer, after years of successful management and experience, has found the following hints for purchasing enabled him to operate the plants under his charge efficiently as well as economically. Therefore, let us first consider what should be done in regard to buying for the plant proper.

GAS COAL

Are you buying coal that is low in sulphur and ash, that will give a maximum amount of gas and a good grade of coke? When buying your coal, have you tested under actual operating conditions a carload or two of the different gas coals available, or has it just been a matter of price?

It has been found that although some coals cost considerable more at first sight, they will give a larger yield, better coke and cleaner gas. Then, why not, in the future, before placing your coal contract, investigate the different coals which are obtainable, and then on actual works results decide what coal to buy.

For water gas plants, are you positive that the grade of coke that you are getting is the best? If you are using anthracite coal, are you positive that what you are getting is giving you the best results? Have you tried other makes of coal? Laboratory tests are all well and good, but the real test is the actual test under actual working conditions.

OILS

What do you know about the gas oils you are using?

Are you buying a gas oil just because it is cheap and easily obtainable, or are you buying a gas oil which gives you a good gas, very little trouble, does not put too much sulphur in the gas, and so make the purifiers work overtime? Have you tested the different kinds of gas oils available, and have you ascertained which will give you the best results in your apparatus? If not, you are buying quantity instead of quality.

COAL GAS APPARATUS

Are you purchasing any new benches, retorts, firebrick, etc.? If so, have you investigated thoroughly each and every different design and type of generating apparatus? Have you had your superintendent or engineer visit the different plants which are using different types of generating apparatus? Have you thoroughly investigated the merits of the firebrick, the design and construction, etc.? Have you investigated other installations, and ascertained what the good points were? And, also, the many troubles this and that apparatus has been causing? Have you thoroughly investigated labor conditions necessary? If not, you are buying quantity and not quality.

WATER GAS APPARATUS

What do you know of the type of water gas set you

intend to purchase? Have you gotten bids from all the construction companies? Have you visited different plants that have this and that type of water gas set in use? Have you assured yourself that the machine you intend to buy will give you the highest results with the least amount of trouble, or have you just purchased a water gas set because the price looked cheap, and the construction company was a good friend?

Condensing and Scrubbing Apparatus

What do you know about the different types of condensing and scrubbing apparatus? Have you investigated the new designs, the new methods, of condensing and scrubbing gas? Have you seen some of these installations? Have you investigated the different aches and ills? If not, you are buying quantity and not quality.

Are you sure that the purifier boxes you intend to purchase are the best? Are you positive that they will cause you the least amount of trouble? Have you decided which is preferable, a water lute box, a dry seal box or a steel plate box? Have you investigated which can be most easily handled when filling and refilling? Or have you just bought because it was cheap?

Are you familiar with the different points of advantage of cast iron, sheet iron and concrete construction? If not, you are again buying quantity and not quality.

Gas Holders

What do you know about the gas holder you intend to purchase? Has it just been a matter of the cheapest holder, or are you positive that the construction and type of this holder is preferable for your needs?

Are you sure that the guides are strong enough, that the proper wind ties are there? Are you positive that the crown sheets are heavy enough? Are you positive that the foundation is strong enough? And are you perfectly familiar with all the other parts necessary to be considered in holder construction? Have you seen some of the holders constructed by this and that company? And have you investigated thoroughly the service this type of construction is giving?

Oxide

There is considerable difference in oxides for purifiers; in fact, more than the average purchasing agent realizes. We have seen oxide where there was but 3 cents per bushel difference in price and over 75 per cent more efficiency in one over the other. Then another question to be decided is the preferability of using shavings, chips, or ground corn cobs, and the writer's experience has been the only way to ascertain which oxide will do the best work is to get a few bushels of each kind and try them in an experimental box. It is a surprising thing how much money can be wasted on account of poor oxide.

Distribution Systems

What kind of pipe are you buying? Have you familiarized yourself with the soil where you intend to place this pipe? Do you know whether the pipe you are buying is the best for this condition? Do you know anything about the pipe that you are buying, or is it just a case of it being the cheapest pipe?

Have you thoroughly investigated the different merits of iron pipe, steel pipe and cast-iron pipe? Have you ever investigated that the pipe you are now buying, although it is possibly a few cents cheaper per foot, has a lot of poor material in it? One adage should always be borne in mind in buying pipe, and that is, "the cheapest is not always the best, nor is the most expensive necessarily the best." Test your pipe, try it, and assure yourself that the pipe will stand your conditions.

No matter what make of fittings you are using, are you positive they are the best? Are you buying fittings because you get more fittings per pound, or are you buying fittings because the price is the cheapest? Have you ever found out how the fittings you bought in the last lot are working? Have you ascertained how many bad fittings you have had through fittings splitting, and also through sand holes? If you don't have this information you are buying quantity and not quality.

Meters

Here is one subject that the average gas man and purchasing agent has a great deal to learn about. What type of meter are you buying? What do you know about this meter? Have you investigated the construction of other makes of meters? Have you investigated what it is costing you to repair these meters? Are you positive of how many times this meter has been in the shop? What do you know of the other makes of gas meters? Have you ever taken time to get samples of the different makes of gas meters; looked over their mechanical construction? Do you know their good points? Are you familiar with their bad points?

Have you ever investigated the different merits of each meter, the capacities of each for a given first cost? Are you positive that the meters you are now using will register under all conditions?

What do you know about the meter you are now using and buying, as to its registering under very low pressures? Have you investigated under your own operating conditions the different merits between a cast-iron and a tin meter, or have you just been purchasing a gas meter because a traveling man is a good fellow, and that you are getting good service, and because you have been using this type of meter for a certain length of time and don't care to change?

The Only Thing Between the Company and the Consumer

The gas meter is one of the most important appliances in the gas business. It is the only thing that stands between the consumer and the gas company. It is through this device that all settlements are made. Therefore, when you buy meters be sure you are getting the best meter, a meter which will register accurately, will withstand your climatic conditions, a meter which will cost but a minimum amount to repair.

It is not so much the first cost of the meter that ought to be considered, as much as the accuracy, efficiency and the cost of maintenance.

Regulators

If you have a high-pressure system and need regulators, this is something that needs the utmost attention. Formerly, gas companies bought regulators just because they were called regulators, and after investigating their regulator maintenance charges they were surprised.

There are regulators of all kinds on the market. It is for the engineering department to decide which is the best regulator, and the only way to tell this is to get regulators of all kinds, investigate their mechanical construction, their method of regulating, etc.

A good regulator is worth its weight in gold, while a poor regulator will cause more damage in a few minutes than the price of a hundred regulators.

In purchasing regulators, one of the first points to be looked after is their mechanical construction to see that all parts are accessible without taking the regulator out of service.

Then, a regulator which will give an efficient and sensitive regulation and a maximum amount of gas, but to go into details of what constitutes a real regulator would mean a special article.

Tools

One thing that most gas plants are always short of is tools. Now, what do you know about the tools you are buying? Are you positive that they are the best for your work? Are you positive that they will withstand the necessary wear and tear? Then, again, are you positive that the tools you have purchased are the most efficient?

The writer knows of one company that purchased fifty Stillson wrenches. They bought them because the traveling man had a fine line of talk, and because they were very cheap. Two weeks after these wrenches were delivered there was not a whole wrench left. The jaws were too soft, the handles were brittle, the frames were weak, and what was the result? Just so much money thrown out.

If you are buying stocks and dies, are you positive they are the best? That the dies will cut a good, deep thread and will stay sharp? Are you positive that these dies will cut deeply and quickly? Are you positive that you have the best for your money?

Then the pipe cutters; what do you know about the cutter wheels? Are they properly tempered? Will they cut a good square edge in a minimum length of time? If you don't know this, find out before you buy.

This should be followed out with every tool you buy, and if your foreman does not know, find out from the fitters. If you want good work, turned out at a minimum cost, you must furnish your men with good tools.

Commercial Department

Formerly the old saying was, that the dividends and success of a gas company all depended upon the gas works. This adage has been proven a fallacy. Of course, it is essential to have good gas, but it is also just as essential to have the proper gas-burning appliances to use the gas which has been manufactured. Therefore, purchasing for the commercial department should receive more attention, and no appliances purchased or installed without first ascertaining that it is the most efficient and economical appliance.

The cry in later years has been standardization. It is in this department that many gas companies have been very weak. They have bought everything and anything. They have made no effort to standardize and no effort whatsoever to discourage the sale of poor appliances by the department stores, plumbers, etc. It was always a case of any kind of a burner, any kind of a stove, or appliance, as long as it would burn gas. Efficiency and economy were lost sight of entirely.

In order to reach this desired standardization, it is first necessary to educate your consumer that the cheapest is not always the best, and the best is not always the most economical.

The standardization of gas-burning appliances will reduce the gratuitous work to a minimum. It will further the sales of gas and establish gas second to none. Every gas company purchasing agent ought to adopt the slogan "quality, not quantity" in purchasing appliances.

Gas Stoves

It is through the gas stove that more gas is sold per unit than any other appliance. Therefore, this subject ought to be gone into very thoroughly by the purchasing department.

Stoves should never be purchased and sold because they are cheap, because they look pretty and neat, but sample stoves ought to be obtained from all manufacturers and tested under your own operating conditions for efficiency in baking, and for efficiency to see what poor bakers some gas ranges are.

The writer at one time made a test of twenty-one different makes of gas stoves, having as his assistants some very prominent domestic science teachers, who found it absolutely impossible to bake anything in some of the ovens. There was trouble of burning either the top or the bottom of the article in the oven; then, again, in other oven construction, the circulation was so poor and so entirely unscientific that it took just about four times longer to bake with them than it did with some of the other stoves.

Natural gas companies have had more trouble in this line than any other gas companies. This has been due to the fact that they never tried to sell stoves and left this to the plumber and different department stores to sell their gas-burning appliances. What happened? They knew nothing, nor were they interested as to the efficiency of these appliances, and just purchased them to sell at whatever price they could obtain. After they had made the sale they were through, and it was then up to the gas company to worry along with it. This meant a cry of poor gas, high bills and no service, and fell solely upon the shoulders of the gas company.

Therefore, before buying your stoves look into the construction of the different makes. Test them, and when you do make your purchases, know and feel sure that the stoves you are purchasing are the most efficient and economical on the market.

Here is another article that ought to receive more attention, and which has been grossly neglected by the average gas company. Many companies have bought heating stoves solely because they look pretty, not because they were the most efficient. Many heating stoves are nothing more than a burner with a lot of drilled holes and a little fancy iron work around them. Test

your heating stoves and sell a heating stove which will give the gas consumer the highest efficiency at a minimum cost.

Gas Burners

Some gas engineers and managers claim that gas lighting is a thing of the past. This is far from so, as we know the many superior points the light of a gas lamp has over the other kinds of light, but why has the lighting business of so many gas companies dropped off?

Solely because the gas company has failed to ascertain which is the best burner, which is the most economical, and then failed to educate their customers to this effect. To-day we can go to a five-and-ten-cent store and buy a so-called gas burner for either of the above amounts, which is nothing more than a lot of sheet brass thrown together. The principle of gas consumption, efficiency, etc., is lost sight of entirely. Even many gas companies have sold burners which are only worth their weight in junk. To get full efficiency out of a gas light it is necessary to have the proper burner scientifically constructed in regard to all points.

Therefore, ascertain which is the best burner, and educate your consumers, and the lighting business of the gas company will leap in bounds.

Gas Arc Lamps

Have you ever thought of the many arc lamps that are hanging useless in your city? It would surprise you to walk along the business section and notice the gas arcs which are not burning. Many times in a very poor state of repair, not being used at all. Why is this? We know for general lighting gas arcs are more efficient and more economical than other methods of lighting, and still we cannot see why we do not get our share of the business.

The reason is that we sold anything that was called a gas arc solely on the manufacturers' claims. Then, again, we did not try to curtail the sale of gas arcs by these "fly-by-night salesmen." Therefore, any gas company that desires gas arc business should convince itself by test which is the most efficient and economical gas arc, and then standardize on this one and see that it is properly maintained.

Gas Mantles

The subject of mantles should be thoroughly investigated. Cheap mantles have done more harm to the business than most anything else. Even to-day we can go to a five-and-ten-cent store and buy a so-called gas mantle for 5 cents. The writer has seen special sales held by department stores where gas mantles were sold for 3½ cents each.

When we sit down and consider the price of thorium, we cannot see how they can even make a so-called gas mantle for this price. Therefore, when purchasing gas mantles, you must adopt a standard. It is not always the gas mantle that costs the most which is the best, and the only way to ascertain which is the best and which mantle will give the maximum amount of light with the most economical consumption of gas, and which has the life, is by actual test. This can be done at your own plant with very little expense. Adopt mantles which you have found out are the best, then let your consumers know about it, and they will quickly educate themselves to the fact that the mantles sold by the gas company are the most efficient and economical in the end.

Fixtures

Here is another department that ought to receive more attention. Don't buy cheap fixtures. Some fixtures are only junk, and after they are up a short time a leak develops, the gas company has a call that the gas is leaking, and in order to ascertain where, it is necessary to send a fitter, and that means expense.

One call costs the gas company more than the amount of gas consumed by this fixture possibly in six months' time.

Try to standardize and purchase fixtures that will withstand the test of time, fixtures that are well constructed with keys that will not leak, and will not get too tight. Do not purchase everything and anything in fixtures, but carry a standard line of well constructed fixtures, and for special calls use your catalog.

More money has been thrown away by buying all kinds of fixtures than at most anything else, and the writer knows of a gas company in a city of 12,000 inhabitants that had over $8,000 tied up in fixtures, most of which were obsolete and only good for junk. Therefore, the purchasing agent should be educated into a standard line and hold that standard line intact.

Gas Irons

Though the amount of gas consumed by a gas iron is not very much, still there are a large number of gas irons on the market which are solely gas-burning appliances and nothing more. Before selling a gas iron, find out which is the most efficient gas iron on the market. Adopt it, and stick to it. It has been the writer's experience to test many gas irons, and found some of them which would heat in spots; some where the points were never heated; others where the point was heated and the main part of the iron practically cold. In other words, gas irons which were made solely to sell and not to use; every iron of this kind sold meant a dissatisfied consumer and a black eye to the gas company.

Industrial Appliances

Here is a department which is a virgin one for the gas company. Every industrial consumer added to your lines means the sale of a large amount of gas if the appliance installed gives efficient and economical service. There is no town so small as not to have a few industrial fuel prospects. Therefore, before buying anything in the industrial line be sure you are buying the best and the most economical.

As a little experience of the writer's. A candy company became a prospect for some furnaces. The management of the company thought it was only necessary to purchase a candy furnace made by one of the many industrial appliance companies, and that was all.

They did this, and then the trouble began. In the first place, the candy furnaces purchased were not properly constructed, and in the end, their installation, instead of proving to be economical to the candy company, proved to be more expensive than their old method.

The writer was called and the construction of these furnaces was changed entirely. That resulted in cutting down the amount of gas consumed over 80 per cent. Had this candy company first investigated the different candy furnaces before buying, they could have purchased a candy furnace which would have met all their requisites and would have saved considerable expense.

Only a few days ago the writer was called to a city which had purchased a number of brass melting furnaces, and the amount of gas used in comparison with the amount of brass turned out made it absolutely prohibitive for the company to keep this installation, but the furnaces were reconstructed, and to-day are giving excellent service. Had this company in the first place investigated different makes of brass melting furnaces, all of this trouble and expense could have been avoided.

These are only two examples. Therefore, if you want your full quota of industrial business, investigate industrial appliances thoroughly. Spend more time looking over their construction at the different gas conventions. Familiarize yourself with the literature pertaining to it, and know what you are getting.

All of the above filters down to: first, a standardization of the most economical and efficient appliances and apparatus, and then an education of the consumer in regard to their operation.

Automatic-Continuous Furnace for Heat Treating Long Round Steel Bars Uses Coke Oven and Natural Gas as Fuel

Width of Furnace Ample to Accommodate Full Length of Bar—Temperatures of Furnaces Taken by Thermocouples Inserted in Discharge End

The *Iron Age* describes a new type of automatic continuous furnace for heat treating long round steel bars in quantities, which is an important feature of the plant of the United Alloy Steel Corporation at Canton, Ohio, as follows:

The unit consists of two coke-oven or natural-gas fired furnaces, one for heating before quenching, a second for heating after quenching, and a quenching tank which is located between the two furnaces.

The bars treated are 1 to 2½ in. in diameter, and in lengths up to 25 ft.

The steel bars are mechanically conveyed through the furnaces sidewise by motor-driven conveyors, the width of the furnace chambers being sufficient to accommodate a bar 25 ft. long.

The temperature of the automatic furnaces is taken by a row of thermocouples inserted in the discharge end of each furnace. These couples are connected to both indicating and recording potentiometers. These instruments are located adjoining the furnaces, the control of the furnaces being independent of the control system used in connection with the other furnaces.

Both Brinell and tensile strength tests of the bars are taken at such intervals as will assure uniformity of results.

For general heat treating on all sizes of round bars, four standard under-fired furnaces are provided, arranged in two rows, with an oil quenching tank at one end of two furnaces and a water quenching tank at the end of the other two. These furnaces have hearths 25 ft. in length and 46 in. wide, and may be charged or discharged from either end.

Annealing Furnaces

For annealing there are two stationary floor level furnaces and two car type furnaces. The former have hearths 10 ft. wide and 20 ft. in length and are used for pipe and pot annealing of high-carbon steels and various high-carbon alloys, both in electric and open-hearth steels. Straight bars up to 20 ft. in length are placed in pipe 6 and 8 in. in diameter. One end of the pipe is placed in a pit 12 ft. deep, 8 ft. long and 6 ft. wide, adjoining a platform, and is filled with bars and packed with charcoal from this platform. Then the pipes are capped and sealed with fireclay and taken to the furnaces. This method of annealing is used only on special steels where very slow heating and cooling is required, and to prevent the decarbonization of the surface.

For annealing coil sizes the coils are packed in pots 42 in. in diameter inside, with 18-in. chimneys. About 1,000 lb. of coil steel can be packed in one pot. This method of annealing is used for the same grades of steel as the pipe annealing. The pots have lugs on each side for handling and are charged into the furnaces with a long-handled carrier having two roller bearing wheels. The material is first given a normalizing treatment from fourteen to twenty hours, depending on its size, composition, etc., and then an annealing treatment at a lower temperature, usually at about the critical temperature of the steel. The latter operation requires very thorough heating, followed by a very slow cooling to get the material in the softest possible condition. Tests are taken of the material given this treatment, and it is also subjected to microscopic examinations.

Car Type Furnace for General Annealing of Bars and Heavy Forgings

The car type of furnaces is used for general annealing of alloy steel bars, heavy forgings, coils, etc., and also for heat treating heavy forgings. Bar stock is annealed to refine the grain, remove strains, and to give the steel good machining, shearing and cold-drawing qualities. These furnaces have a capacity of 25 tons to a charge. Two cars are provided, and while the one charge is being annealed the other car is being loaded. The cars are moved by a drum and cable arrangement, and when one car of material is drawn out of the furnace the other is drawn in. These furnaces are approximately 35 ft. long and 6½ ft. wide. The cars are 29 ft. long and have five sets of wheels, all running on Hyatt roller bearings. Located near the furnaces is an oil quenching tank 30 ft. long, 6 ft. wide and 6 ft. deep, used principally for quenching heavy forgings.

Air and Gas Pressure

The blast for the furnaces is supplied by two No. 10 Sturtevant fans arranged in duplicate, so that either may operate the entire plant. Each unit is driven by a 60-hp. motor. Air is supplied at 10 oz. pressure and gas at 12 oz. pressure. All air blast, gas and water lines and pyrometer leads and electrical wires are carried through the plant in a concrete and brick conduit covered with cast-iron plates. The main gas lines are

equipped with quick closing valves, which automatically close if the power goes off the blowers. These valves, together with check valves on the air lines, are safety devices installed to prevent explosions.

The temperature of all furnaces are taken and observations are made at a control board in the department office, the board operator flashing signals to the furnace operator by red, white and green lights. The furnaces are equipped with base metal thermocouples with nichrome protecting tubes. The control station is provided with a busbar board, so that connections can be made to take a continuous record on a 10-point recording instrument of any 10 thermocouples in the plant. The pyrometers, recording instrument and busbar board were supplied by the Leeds & Northrup Company.

Service Charges for Public Utilities

"Officials of a number of cities of New York State a few days ago, in taking action to oppose the increasing of rates of gas and electric light and power contemplated by public service companies in their cities, passed a resolution opposing a service charge by such companies," states an editorial in the *Municipal Journal* of recent date. "Whether or not the rates should be increased, . . . we believe that the officials are wrong in opposing the use of the service charge as a principle of rate-making. It has been quite generally accepted as a correct principle in making water works rates, and we can see no reason why the same arguments do not hold good for the sale of gas and current.

"It has been argued that the poor man using a small amount of water, gas or current should not be charged a higher price per unit used than is the wealthier user of larger quantities; one reason given being that the manufacturing cost to the company or city per unit of material or current is the same in both cases. On the other hand, large consumers demand special rates and companies find it to their advantage to grant them. There is a logical reason for giving the large consumer more favorable terms, and this reason finds expression in the service charge. If we take the lowest rate as a basis, we may assume that the same rate is used for all classes, and that the difference between the average annual bill for any class, and what the bill would amount to if based solely upon such minimum rate, is the cost to the company of service necessarily performed other than the manufacturing of the water, gas or current.

"Such services consist of furnishing and maintaining a meter, reading the same, keeping the consumer's account, making out bills and collecting, furnishing the mains and connecting the same to his premises, etc. Most of these cost almost as much for a small account as for a large, and the part of the charge for service rendered that is based upon these would therefore be entirely independent of the amount of water, gas or current used.

"This would, of course, make the charge to the small consumer greater *per unit used* than to the large consumer. But to make the charge per unit used the same to each is to make the large consumer pay more than his share of the service costs. . . .

"The service charge represents a real expenditure in rendering public service that must be paid by the consumers. The question is whether it shall be paid almost entirely by the large consumers, or shall be distributed among all in proportion to the service received by each."

More Than Half of Cast Iron Pipe Manufactured in United States in 1914, Made in New Jersey and Alabama

More than half the cast-iron pipe manufactured in the United States in 1914 was made in New Jersey and Alabama, according to the United States Census of Cast-Iron Pipe Manufactures for the years 1909 to 1914. These States reported 49.2 per cent of the establishments, 56.6 per cent of the wage-earners and 59.2 per cent of the value of the products, the former State producing 27.6 per cent and the latter 25.3 per cent of all cast-iron pipe manufactured in the United States.

The average number of persons engaged in the industry in 1914 was 13,290, of whom 12,557, or 94.5 per cent, were wage-earners; 188, or 1.4 per cent, proprietors or officials, and 545, or 4.1 per cent, clerks and other subordinate salaried employees. Of the total number of persons engaged in the industry, 99.2 per cent were males. Less than 1 per cent of the total number were under sixteen years of age.

In 1914 the maximum number employed was 13,427 in August, but in 1909, November, with 13,174, was the month of maximum employment. The minimum number was employed in December in 1914 and in January in 1909. The degree of fluctuation in employment was substantially the same in each year, the percentage, which the minimum number employed represented of the maximum, being 84.4 per cent in 1909 and 83.3 in 1914.

The statistics for 1914 in comparison with 1909 show a marked decrease in the number of establishments with products valued at $1,000,000 and over, as well as in the number of wage-earners and value of products reported by such establishments. These establishments reported 38.4 per cent of the total wage-earners and 44.3 per cent of the total value of products for 1914, as compared with 58.1 per cent of the wage-earners and 61.6 per cent of the value of products for 1909. As a rule the tendency of industrial enterprise is to become concentrated in large establishments, but in the present case the decrease in the largest group is presumably due, in part at least, to the general depression in the iron and steel industries in 1914 on account of the European war, the big plants responding to trade conditions more quickly than the smaller ones. The production of cast-iron pipe and fittings in 1913, according to the annual statistical report of the American Iron and Steel Institute, exceeded that of 1914 by 105,465 tons. The greatest increases appear for establishments with products valued at $100,000 to $1,000,000. In this group the establishments increased from twenty-eight in 1909 to thirty-seven in 1914 and reported 57.3 per cent of the wage-earners and 52.6 per cent of the value of products, as compared with 39.4 per cent and 36.5 per cent, respectively, reported for 1909.

The leading States on a tonnage basis are Alabama, New Jersey, Pennsylvania and Ohio, in the order named, and these States produced more than four-fifths of the tonnage. The bulk of the product is what is known as bell-and-spigot pipe, made with a bell socket at one end, and the other adapted to fit into the bell of a contiguous section.

Patents Pertinent to Gas Industry

Acetylene Gas Generator Has Carbide Holder Contained in Gas Bell

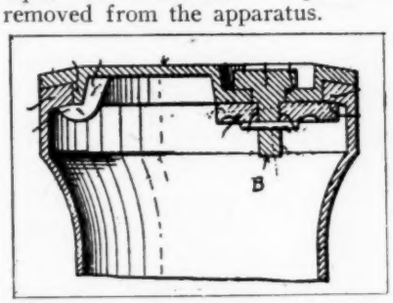
Patent No. 1,225,559; described in Patent Office *Gazette*, May 8, 1917, page 551. Telesphore Babin, Houma, La. Filed Dec. 12, 1912. Serial No. 736,383. (Cl. 48-44.)

The feature in this acetylene generator consists in the gas bell having the carbide container in its top. By means of rods, links and connecting levers the discharge of carbide is controlled by the raising of the bell.

Apparatus for Cooling Gases Consists of Modified Surface Condenser

Patent No. 1,228,930; described in Patent Office *Gazette*, June 5, 1917, page 188. Emil Josse and Wilhelm Gensecke, Charlottenburg, Germany. Filed Oct. 28, 1911. Serial No. 657,204. (Cl. 62-152.)

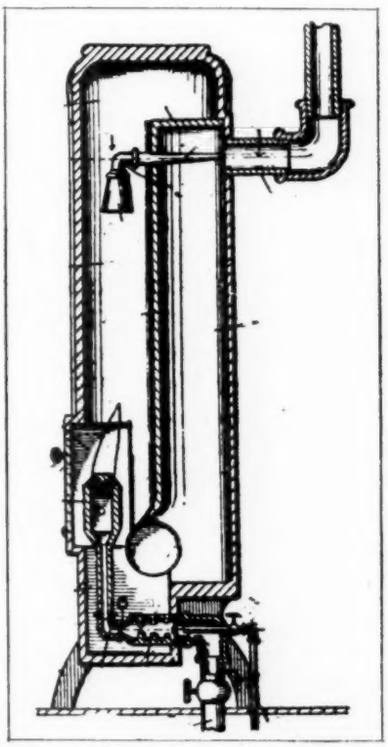
This apparatus for the condensation of gas consists of a surface condenser with an outlet for the cooling medium, and a water or steam jet apparatus connected with the outlet and operated by the cooling medium after it has passed through the condenser. By this means condensed liquid and uncondensed vapors are removed from the apparatus.



Service Box Cover Not Easily Lost

Patent No. 1,224,534; described in Patent Office *Gazette*, May 1, 1917, page 150. James F. Hall, Anniston, Ala. Filed Dec. 23, 1916. Serial No. 128,582. (Cl. 137-13.)

The essential feature of this service box cover is the use of a bolt which is inserted through a depressed portion in the cover. This bolt engages a button, which in turn coacts with the annular flange at the top of the service box.



Gas Heater With Positive Ventilating Apparatus

Patent No. 1,225,575; Patent Office *Gazette*, May 8, 1917, page 557. William H. Cain, Los Angeles, Cal Filed Oct 23, 1916. Serial No. 127,149. (Cl. 126-91.)

This gas radiator consists of a vertical combustion chamber with the gas burners in their lower ends. A conduit conveys the waste gases from the burner sections, a discharge pipe provided with a draft accelerator taking the products of combustion from the conduit. A positive draft is established.

Self-Draining Attachment Provided for Gas Meters

Patent No. 1,229,842; described in Patent Office *Gazette*, June 12, 1917, page 544. Henry P. Westcott, Erie, Pa. Filed June 5, 1916. Serial No. 101,839. (Cl. 183-4.)

This patent provides a means for the self-draining of condensation from gas meters. Absorbing elements are attached to the meter wall around the opening through which the condensation drains.

Coke Discharger for Quenched Coke

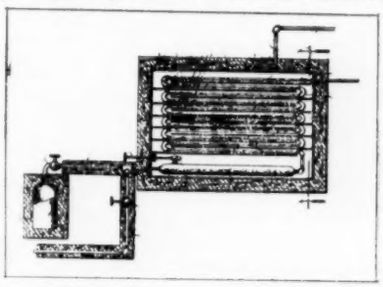
Patent No. 1,229,691; described in Patent Office *Gazette*, June 12, 1917, page 494. Stephen Newcombe Wellington, London, England. Filed Oct. 30, 1916. Serial No. 128,471. (Cl. 214-1.)

This coke discharger consists of a frame having a mouth which is placed over the upper part of the receptacle in which the coke has been quenched. A curved plate or wall is mounted over this mouth, in order to deflect the coke, a rim being provided to quickly carry away the coke to the conveyor.

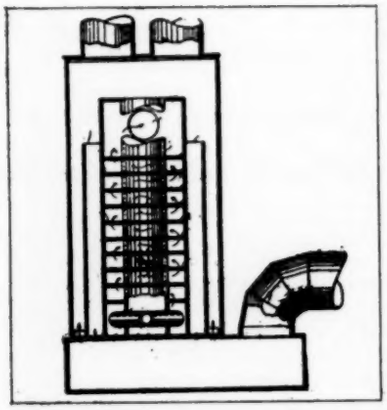
Apparatus Designed for Condensing Gas Under High Pressure

Patent No. 1,225,574; described in Patent Office *Gazette*, May 8, 1917, page 557. Godfrey L. Cabot and James J. Cabot, Boston, Mass. Filed Oct. 26, 1914. Serial No. 868,680. (Cl. 257-240.)

This apparatus consists of a closed heat-insulated chamber having a zigzag passage extending through it from its upper to its lower end. This passage is provided with an outlet at



its upper end. A coil of pipes is arranged within the chamber, its turn following the course of the passage, and being provided with an inlet at its upper end. A horizontal closed collecting tank is placed at the lower end of the chamber, one of the ends of the tank being connected to the lower end of the coil. An outlet at the other end of the tank extends through the chamber to the outside. An expansion valve is placed on the upper side of the tank at its opposite end in order to provide an exit for the gases collected in the upper portion. The valve may be operated by manual means.



Gas Heating Apparatus Provided With Baffle Plates

Patent No. 1,225,693. Patent Office *Gazette*, May 8, 1917, page 596. John Wollant, Cleveland, Ohio. Filed Feb. 18, 1913. Serial No. 749,144. Renewed April 7, 1917. Serial No. 160,540. (Cl. 126-90.)

This apparatus consists of a cold-air cell with a cold-air pipe leading thereto. The combustion chamber is provided with an opening in the top for the escape of the products of combustion and a circular gas burner is located in the bottom. A conduit communicates with the cold-air cell and is substantially concentric with the combustion chamber and extends parallel to this chamber. The walls of the combustion chamber and the conduit form a passage for the air, the conduit being shorter than the combustion chamber. A number of baffle plates are placed in the chamber, being provided along that part of the chamber coincident with the conduit, each baffle plate being provided with an opening, and mounted so the openings are in staggered relation with respect to one another, and form a tortuous passage for the products of combustion through the combustion chamber. The baffle plates engage the side walls of the chamber. A casing surrounds the combustion chamber and the conduit, and is spaced therefrom to form a passage for the passage of air from the cold-air cell, a second conduit leading through the circular gas burner and the combustion chamber to conduct cold air therethrough. The inner edges of the baffle plates rest against the second conduit. Hot-air flues lead from the top of the casing.

Hot Air Furnace Equipped to Burn Gas

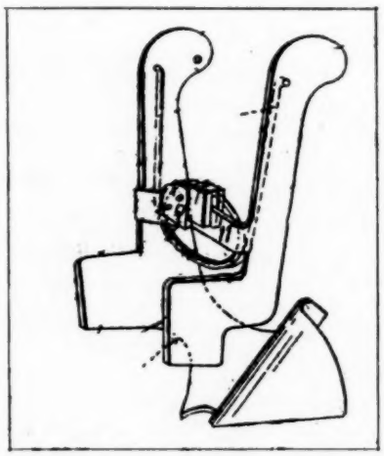
Patent No. 1,224,700; described in Patent Office *Gazette*, May 1, 1917, page 208. Charles Atherton, Pasadena, Cal., assignor to Unit System of Heating and Manufacturing Company, Pasadena, Cal., a Corporation of California. Filed March 13, 1916. Serial No. 83,988. (Cl. 126-116.)

This furnace consists of an outer shell provided with air inlet ports in the top and a damper which may be operated to close these ports. A second shell is built inside of the outer shell, with a register pipe secured to, and connecting with, the inner shell, and projecting through the outer shell. A manifold is placed inside the inner shell near its top, and a combustion chamber rests on the bottom of the outer shell, and projects into the inner shell. A connection with the outer air is provided for the combustion chamber through the outer shell, and a number of tubes connect this chamber with the manifold previously noted, the gas burner being placed in the combustion chamber. An indirect flue intake connects one end of the combustion chamber with the corresponding end of the manifold, while a direct flue passes through the outer and inner shells and connects to the top of the manifold, a flue damper being so located as to close this flue. An indirect flue is connected to a point in the side of the previously mentioned indirect flue intake between the combustion chamber and manifold, and passes through the inner and outer shells to connect to the direct flue outside of the latter shell. The bottom of the inner shell is perforated to admit additional air to the combustion chamber. Thermostatic control of all dampers is provided.

Fuel Gas Produced by Carburetting Air

Patent No. 1,229,338; described in Patent Office *Gazette*, June 12, 1917, page 374. Max Sklovsky, Moline, Ill., assignor to Deere & Co., Moline, Ill., a Corporation of Illinois. Filed Sept. 8, 1914. Serial No. 860,709. (Cl. 158-117.5.)

This method of producing fuel gas consists in heating air to temperature of more than 500 deg. Fahr. and passing this air at high velocity through a vaporizing chamber. Fuel oil is thoroughly mixed with the air in this chamber in such proportions as to insure substantially complete combustion.



Lead Pouring Ring Properly Placed When Using This Device

Patent No. 1,226,043; described in Patent Office *Gazette*, May 15, 1917; page 758. George H. Wilkins, Greenfield, Mass., assignor to George H. Wilkins Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 14, 1916. Serial No. 136,880. (Cl. 22-118.)

Each of the ends of the lead pouring rope is clamped in opposite members of this device, the members being pivoted and arranged in such manner as to draw the flexible pouring ring tight around the pipe. A pouring spout is connected to one of the members to facilitate the pouring of the lead in the joint.

Thermostatic Control Prevents Danger from Unlighted Gas

Patent No. 1,227,086; described in Patent Office *Gazette*, May 22, 1917, page 1140. Jesse G. Stenson, Minneapolis, Minn. Filed March 29, 1915. Serial No. 17,687. (Cl. 67-116.)

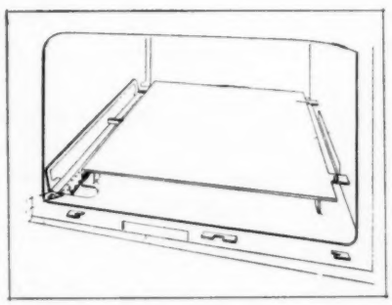
In this open-flame burner, the shut off is provided with a spring which forces the valve into the closed position when the gas is unlighted. When the gas is lighted, a thermostatic wire overcomes the tension of the spring, and holds the valve open.

Instrument for the Detection of Combustible Gases

Patent No. 1,224,321; described in Patent Office *Gazette*, May 1, 1917, page 74. Arnold Philip and Louis J. Steele, Portsmouth, England. Filed Nov. 26, 1912. Serial No. 733,719. (Cl. 73-51.)

This catalytic device for the detection of the presence of combustible gases in the atmosphere consists of two active wires alternating with two inactive wires, with connections be-

tween them, forming a Wheatstone bridge. An indicating apparatus and a source of electrical supply are joined to the bridge. The adjustment of the properties and dimensions of the wires is such that the connecting current and resistance is the same for each over a small range of voltage. The presence of the combustible gas causes the difference in resistance of the wires to operate the indicating apparatus.



Combination Range Has Gas Burner in Pocket on One Side of Oven

Patent No. 1,225,248; described in Patent Office *Gazette*, May 8, 1917, page 444. Roger Hogan, Geneva, N. Y. Filed Oct. 10, 1916. Serial No. 124,783. (Cl. 126-39.)

This combination range consists of an oven with a burner pocket at one side containing the gas burner. The oven is vented, a deflector plate having one portion of its edge adjacent to the burner pocket and another portion of its edge adjacent to the vent. By this means the heated gases pass partly above and partly below the plate, and the passage of heat through the oven is practically unrestricted.

Treatment of Mineral Oils and Residues for the Production of Lower Boiling Hydrocarbons

Patent No. 1,226,041; described in Patent Office *Gazette*, May 15, 1917, page 757. Carter White, London, England. Filed May 13, 1914. Serial No. 838,230. (Cl. 196-26.)

This process consists in bringing the oil or residue in a liquid state on to quicklime heated to a temperature of between 400 to 650 deg. C. in the absence of added water vapor, the lime remaining in an unslaked condition during the process.

Portable Gas Burning Heating Stove

Patent No. 1,224,469; described in Patent Office *Gazette*, May 1, 1917, page 128. George H. King, Anderson, Ind., assignor of one-fourth to R. H. Brunt, Summitville, Ind. Filed July 13, 1916. Serial No. 109,119. (Cl. 126-90.)

In this stove an outer vertical drum is provided with a series of perforations. A number of hollow deflecting and radiating baffles form pockets in line with the perforations. A vertical, conical, inner drum, open from end to end, passes through the baffles, and is in communication with the pockets. This arrangement forms a passage for the products of combustion from the burner, which is located in the base of the stove.

Gas Heated Radiator Controlled by Damper Box

Patent No. 1,224,784; described in Patent Office *Gazette*, May 1, 1917, page 237. Frank J. Pioch, San Francisco, Cal. Filed June 14, 1916. Serial No. 103,656. (Cl. 126-91.)

In this gas radiator an elongated opening is formed in the rear side of the central radiator section, a damper box being mounted inside of the section in the combustion chamber. An outlet of the damper box registers with the opening in the radiator section. In addition to the combustion chamber the radiator is provided with a return chamber at the bottom, a reheating tube connecting the damper box and the return chamber. A discharge flue is connected to the opening before mentioned, an adjustable plate containing a vent opening, provides communication between the damper box and the discharge flue. A damper is pivotly mounted on the upper end of the damper box, and means are provided through manual operation to control the heat from the gas burner.

Roadway Box Made of Built-up Sections

Patent No. 1,226,747; described in Patent Office *Gazette*, May 22, 1917, page 1031. Alvin Bugbee, Trenton. N. J. Filed April 29, 1913. Serial No. 764,327. (Cl. 137-13.)

This roadway box is made of interlocking steel plates with a base and top plates. The height of the box is adjustable.

Hydro-Carbon Burner Made of Two Chimneys

Patent No. 1,227,239; described in Patent Office *Gazette*, May 22, 1917, page 1201. William J. Best, Detroit, Mich., assignor to Gas Oil Stove Company, Detroit, Mich., a Corporation of Michigan. Filed Dec. 8, 1915. Serial No. 65,654. (Cl. 158-87.)

This hydro-carbon burner consists of perforated outer and inner chimneys, and a trough, integral with the inner chimney and supporting the outer chimney. Fuel is fed to the trough. An annular cover is provided for the trough, which has a flange at its inner edge extending up around the outer chimney. A cowl is fastened to the outer chimney and extends down over the flange, but is spaced at some distance from it. The outer chimney is perforated with holes between the flange and the cowl to permit air to enter the space between the chimneys.

Gas Main Stopper Operates Surely and Quickly

Patent No. 1,224,721; described in Patent Office *Gazette*, May 1, 1917, page 216. James S. Donohue, Washington, D. C., assignor of one-third to Michael V. Moran and one-third to John E. Moreland, Washington, D. C. Filed Sept. 14, 1916. Serial No. 120,187. (Cl. 137-76.)

This stopper consists of the usual diaphragm common to all gas main stoppers, but in addition means are provided for absolutely sealing the tap hole while the stopper is being placed in position. The stopper is placed in operation by downward pressure on the diaphragm rings, which expands them into position. The stopper can be locked into position by a set screw, which prevents the stopper from slipping.

Bee-Hive Oven Arranged to Recover Volatiles Given Off During Coking Period

Patent No. 1,227,060; described in Patent Office *Gazette*, May 22, 1917, page 1139. Matthew Marshall, Sr., Vancouver, B. C., Canada. Filed Dec. 13, 1916. Serial No. 136,612. (Cl. 202-3.)

In this bee-hive oven the volatile elements pass through take-off pipes to the condensers, by means of a subfloor, arranged beneath a floor of firebrick built in criss-cross fashion, the space between the two floors being filled with a permeable filling.

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Closing an Eventful Year With a Smile

Few have been the years in the history of this nation when portentous events such as have transpired during the course of the year now closing have been crowded into the life of each individual. The worries and perplexities of the nation—in fact, of all the world—have taken their place in the minds of the people of this great democracy. Everywhere conversation is almost exclusively confined to the war and its successful termination.

But through all this fog of uncertainty, mingled with sorrow, there gleams many beams of thankfulness which need only the spirit of Christmas cheer to kindle and ignite.

To the gas industry there may have been times in this trying year when the odds seemed unfair and all one-sided. But when looked at from the national viewpoint, the gas man may feel proud, and justly so, that the field has been able to fill so well its part in the crisis, and also to look forward with anticipation to the still greater part which it has to play in this colossal effort to bring everlasting "peace on earth."

There is always plenty of room for the smile. Christmas cheer has a subtle duty this year, but it is a pleasant one. We say, make it the happiest and most joyful within the remembrance of every one, and so add a stimulant which will carry-on through much of the new year soon to come.

This is an opportunity which only comes to us once a year, an appreciated one, too, and we wish to use it to its fullest extent in thanking our readers and friends for their loyal support through this, our fifty-ninth year, and we extend to *all* the wishes of this journal for a most merry and joyful Christmas and a happy and prosperous New Year.

Basing Standards on Superficial Data

On the basis of the ruling of the Public Service Commission for the First District, New York State, New York City gas companies are proceeding with construction to produce toluol. As this JOURNAL interprets the report of the hearings and published correspondence subsequent to them, the standard as set and the general terms of the ruling are not a closed incident. The gas companies take exception to both and petition a rehearing.

In the meantime in order that the national interests may not be jeopardized they are actively at work towards supplying the Government with the by-products it needs, trusting to the future that their patriotism shall not be penalized.

None who follow the hearings in question could have been otherwise than amazed and completely befuddled at its termination. At a moment when the discussions had apparently just fully gotten under way, when a defi-

nite time had been set for the next hearing, at which many of those attending anticipated real developments would occur, and substantial data bearing on the question would be brought out, came the ruling.

When one had recovered sufficiently from the shock of this abrupt termination to study the ruling his amazement was increased. To the best of the knowledge of a close listener no information had been brought out that would establish just what quality of gas, judged by heat units, the consumer had been getting.

A number of random tests stretching over no extended period were testified to, however.

A further weakness of the tests existed in the fact that they were taken at a time when a good part of the gas served was being distributed through exposed mains bridged high over the city's street crossings and stretched out along its gutters.

On the basis of the superficial knowledge gained from these tests under unusual conditions the commission apparently based its standard.

When the Massachusetts commission undertook to set a heat unit standard it had a relatively limited amount of data to base it on. But this commission realized it was dealing with an important matter. It therefore withheld its ruling until extensive tests under practical operating conditions should convince it that it was setting a standard that would be just to all—not only to the consumer, but to the company as well. What a sorry contrast the action of the commission for the First District, New York State, offers to this.

The New York commission could, had it been so inclined, have found a considerably more extensive and substantial data upon which to base its findings than the Massachusetts commission had at its disposal. But the New York commission apparently was not greatly concerned with such fripperies as a scientific basis for the standard it set.

In the first place, it had set itself out to correct a waste. Even this commission recognized the futility of spraying quantities of costly oil into a gas if the expenditure benefited practically no one.

There is good reason to believe that efforts to correct this waste have resulted in the establishment of another waste equally inexcusable.

Testimony offered at the hearings tended to show that a good number of the heat units in the standard set, under practical operating conditions, will serve no useful purpose to the consumer.

Further, the New York commission was dealing with a war question. It made this fact quite evident in verbal utterances, though the conduct of the proceedings did not indicate that anything broader than a local condition was being dealt with, and the ruling arrived at was seemingly formulated with the viewpoint of satisfying the demands of rival mayoralty candidates rather than with the broad viewpoint of war-time needs.

When dealing with a war question, the accepted practice is to seek out some precedent that will give one a reasonable assurance that the course adopted will promise success. The terrain in France and Belgium is almost entirely different from that in the territory over which our Civil War was fought. But the military situation has presented striking points of similarity.

In coping with the tasks they have in hand, contending generals have many times revealed knowledge of the tactics and strategy of our Civil War generals. They have studied them to be better able to form their own plans.

The United States is making a big investment in military tanks. Though the outgrowth of American tractors, these engines were first employed as military weapons by the British. Our military authorities at least have not scrupled to learn from the experience of others.

One does not have to be particularly widely informed to know that British gas companies and British gas-using communities have been wrestling with the problems we are just taking up, under very trying conditions, for several years. With very extensive data in regard to their experience almost immediately at hand for study, why did not the New York commission profit to an extent by the lessons they teach. The following editorial, reprinted from the English *Gas Journal*, indicates some of the errors it could have avoided if it had:

"The Public Service Commission of New York, judging from experience on this side, have a strange conception of how best to encourage the gas companies under their jurisdiction to serve the War Department by extracting toluol from their gas. It is admitted by them that the ingredients it is desired to remove from the gas can be better obtained under a calorific standard than under an illuminating power one, and they also recognize that a public emergency exists. They therefore proceed to assist in this public emergency by prescribing that the monthly average total heating power of the gas shall be not less than 650 B.t.u., which, from our way of thinking on this side, corroborated by experience, is unnecessarily high, and does not give much scope for working up to the highest point of efficiency in respect of toluol extraction. Then, again, the price to be charged for the gas is not to be altered, but if a company elects to furnish gas of not less than 650 B.t.u., the rate to be charged is not to exceed that now authorized, but there is to be a percentage reduction equal to the percentage by which the number of B.t.u. monthly average is less than 650 B.t.u. So that if in working for the best efficiency for the War Department, there is a falling away from the high figure of 650 B.t.u., the companies are to be penalized. Furthermore, they are, on the application of any consumer who obtains illumination exclusively from the flat-flame burners, to provide and install, but not renew, free of any charge, one incandescent lamp complete with mantle, but not in more than two rooms. It is a good thing there are no more holes by which the public service commission can further tighten the harness, and impose greater restraint upon the gas companies' liberty in rendering the great-

est possible service to the War Department. Over here we consider, and the bulk of gas consumers agree, that, in this war, national interests come before the interests of the gas consumers."

Considering that it was dealing, then, with a war problem, that the national interests are predominant and those of the consumer dependent entirely upon the extent to which they can be conserved in conjunction with the greater interests, would it not seem more logical to use English experience as a basis of the findings than those of the commission's engineering staff on random tests on gas that is being distributed in a manner that it was never distributed so extensively before, and probably never will be distributed again, and those of the testing laboratories of the Bureau of Standards? Superficial judgments are costly, both to the company and to the consumer.

At Work Behind the Lines

Our news columns have noted the fact, but, so unostentatiously did they go about it, it is possible that the fact that several of our largest gas companies have actually started to work towards toluol recovery may have escaped the attention of the gas industry. From day to day, almost in a routine manner, we may expect to hear of other companies falling in line.

One feels a pleasurable thrill of relief at the thought that the tedious period of necessary discussion, readjustments and preparation is passing—that we now have our coats off and are actually doing something.

The AMERICAN GAS ENGINEERING JOURNAL does not consider it a reason for mutual felicitation that we have arrived at this point. From the day war was declared, and we knew the gas companies would be called upon to produce toluol, no one who knew the history of the gas industry, its traditions and the characters of the men it now has at the helm could doubt that, despite a seemingly total engrossment in discussions, the industry would be discharging its allotted mission at the earliest possible moment; that in spite of the time devoted to talking it would be working at fever heat to be ready when it should be ready.

Considerable misunderstanding has been created in regard to the attitude of the gas industry in regard to the toluol question. In fairness to outside interests, however, it must be said that the most unfair attack made on the industry in this regard that came to our attention was published in a gas journal. It would be unjust to complain of lack of understanding of the gas industry's situation and problems on the part of the public when one of our own organs revealed so complete a lack of real understanding and knowledge as to make that of the public and its laboratorians pale by comparison.

Those who possessed a better conception of the gas man's character paid no heed to these doubts; would have dismissed as absurd any thought of the gas industry's putting its own interests before those of the nation.

Such people place Manager Blank, of Blankville, in his proper category. They know he is not the proprietor of the property he speaks for, but the custodian and trustee, responsible to its owners, who are many, for the security of their investment. If he were the owner himself what he did with his property, whatever hastily-considered obligations he might incur would be a matter of his own concern. What he does with other people's property is a different matter.

Consequently, those who based their judgments on broad reasoning knew that Manager Blank would discuss the subject intensively, that he would strive to get entirely to the bottom of the matter and understand clearly every factor involved.

Perhaps he might tend to be ultra-conservative, to be a little slow at comprehending. Such situations as these are new to him, it must be remembered.

But when the show-down came, Manager Blank would inevitably be in his shirt sleeves doing his bit with the rest of them. And, in the opinion of this JOURNAL, the nation could feel more secure in the fact that Blankville could be relied upon consistently because it had a man of Manager Blank's type at its head.

Men who look before they leap, who study the situation before they take hold of it, do not fall down when unforeseen contingencies occur.

How the Gas Companies are Helping the Nation

L. HARDMAN & SONS, supplying natural gas to Richburg, N. Y., invested $200 in the Liberty Loan and contributed $10 to the Red Cross campaign. L. A. Hardman, general manager of the company, enlisted in the Quartermaster's Corps June 15, and is now driving a truck in San Antonio, Tex. During his absence Harry M. Hardman has been performing the duties of general manager.

THE NEW HAVEN GAS LIGHT COMPANY, of New Haven, Conn., is carrying on "wheatless meals" demonstrations in its assembly room, and all women of the city are invited to attend. These meetings begin at 3 o'clock in the afternoon, and all who can attend are asked to be present on time so as not to interrupt the lesson while it is in progress. A "Christmas luncheon" was demonstrated this week. Mathilda Hawkins is director of this home economics department, as it is called.

Merchandising Gas

Training Employees by Motion-Pictures

A Method that Requires No Investment in Films or Apparatus

By ERNEST A. DENCH

Many gas companies give occasional lectures of a more or less informal character for the benefit of their employees. Brown relates how he sold a $20 gas lamp to a woman who came in to buy the cheapest lamp in stock. Jones relates how he converted a man to gas who had his mind set on electricity. Smith describes how he pushed the gas iron sales.

The lectures given by gas companies demonstrate the difference between natural gas and artificial gas, how the various kinds of gas lamps are manufactured, the best lamp for service and long wear, the best lamp for appearances, what should be considered in installing lighting, heating and cooking apparatus in homes and buildings of different sizes, and the miscellaneous uses in the home for gas-ironing, for instance.

It is the salesman who knows all of the foregoing things—and a good many more as well—who makes the most capable salesman. He can converse intelligently with all sorts and conditions of people, and, what is more to the point, convince them by his superior knowledge. The salesman who knows merely a fact here and there about gas—that and nothing more—is at a serious disadvantage. He may try to convince his client by hot-air talk, but the gas company has lost her good-will.

Salesman Only Human

The salesman is only human. Naturally, he is not going to get wildly enthusiastic over a lot of dry-as-dust technical stuff. If you can teach him by methods that are as entertaining as they are instructive, he is going to pay a whole lot more attention to your lectures and will not plead an "important engagement" on the evening set aside for the lectures.

Large industrial plants have solved the problem of instructing their employees by motion-pictures, so why not the gas company?

Lectures and textbooks are both excellent in their particular ways, but they can be made doubly attractive as well as effective by the cooperation of the motion-picture. The motion-picture begins where both the lecture and textbook leave off, and instead of trying to explain technicalities, shows them without the need for wading through a mass of details in order to get the gist of them. The appeal of the motion-picture is universal because the motion-picture knows no language.

No Investment in Plant Required

But motion-pictures are expensive and difficult to rent for the purpose, and there may not be suitable gas subjects available. Where is the gas company to show them?

It has not the facilities for motion-

(*Continued on page* 576)

In 80 Per Cent of Cases that Come Up Gas for Industrial Fuel Requires No More Technical Salesmanship Than for Lighting or Domestic Purposes

Methods of Selling Standard Industrial Appliances—Advertising—Demonstrations and Displays

By GILBERT C. SHADWELL

That there are very many gas companies, however, which are not making full use of the many fuel appliances on the market to-day is an unfortunate fact, and it is to be hoped that by the aid of proper educational methods they will shortly adopt the practice initiated by other companies and begin to display, advertise and sell gas for all the thousands of industrial purposes to which it can be put.

To many gas men who have remained out of the industrial field there seems to be something almost uncanny about the industrial application of gas. Perhaps it may be due to the endless uses to which gas may be put in the industries, thus leading to the idea that only an engineer can sell anything with so many strings tied to it.

If only the question of the sale of gas for industrial purposes be given just the slightest thought, it will be found that there are enough regular standard appliances on the market to occupy salesmen for a very considerable time.

In 80 per cent of the cases that come up, an industrial appliance is as easy to sell as a gas lamp, range or water heater.

Being themselves acquainted with the different appliances and their uses, there should be undertaken by gas company managements:

Systematic advertising,

Showrooms,

Demonstrations and displays

and a general educational system.

Perhaps the most important matter is that of displays and demonstrations.

No gas man would be selling all the "domestic" appliances he does did he not display them. The best of us are skeptical about those matters we know nothing about, so that it is not unreasonable to state that a prospect will be skeptical unless he can see the goods and the operation performed with his own eyes.

With every one of us, seeing is believing. This point cannot be too strongly insisted on. *The gas companies that are getting the industrial fuel business to-day—be they large or small—are those that have industrial appliances on display.*

A display fills a threefold purpose: (1) The prospect can see it; (2) an appliance can be delivered at once and a new one to replace it can readily be obtained, thus saving the consumer time, and (3) it is there for the instruction of the salesmen, who not only educate themselves in the use and construction of each appliance, but who, understanding the appliances can speak with first-hand knowledge to a prospect about them and their use. An example from a sales viewpoint may be appreciated.

A printer may appreciate in a general way the fact that gas is better than other fuels for melting his metal.

If, however, a statement be backed up by his being invited to the gas company display, and his being shown 350 to 400 of linotype "slugs" melted in an ordinary atmospheric soft metal furnace, and the operation of pouring begun in less than thirty minutes after lighting, he will believe the original statement. He will believe his own eyes and he will buy the furnace if he can use it. The same or similar reasoning applies to the rendering of lard, the brazing of parts, the drying of materials, the heating of wagon tires, etc.

Co-operation of Gas Companies and Manufacturers

The manufacturer is in need of all the support he can get from gas companies. It is up to him to have the best possible appliance for the work, and in order that he may be in a position "to deliver the goods" he should be given as complete details as possible of the necessary requirements and supported in every way.

Care in making out orders and in keeping catalogs up to date is another very essential factor. Many manufacturers have adopted sectional catalogs in order that all data may be kept up-to-date, and forwarded to customers without unnecessary delay. These sections should be inserted in the binder to replace the older ones they supersede. This is especially important, as a change is only made, as a rule, when there is a change in price or specification.

A manufacturer is in the best position to improve his products if supported freely. After all it is no part of a gas company's business to make appliances, and they can usually be turned out more quickly, more cheaply and better by the manufacturer who is doing such business all the time than by those who must experiment almost every time.

Salesmen's Qualifications

It is almost a safe assertion that a gas salesman should be able to sell before being a gas man.

If such a salesman is to sell industrial appliances he should be given every opportunity to study the different appliances on the market and to make himself familiar with their uses.

The humblest "industrial" appliance usually consumes far more gas than any "domestic" appliance, and does it with satisfaction to the customer. Hence, by beginning on the simpler appliance, such as soft metal furnaces, cauldron furnaces, water stills, etc., any salesman in a gas company can soon bring himself up to the level of the larger appliances and educate himself to tackle special work should occasion demand.

Nothing helps the salesman so much as a showroom having industrial appliances on display for exhibition and demonstration purposes.

Add to this suitable meetings and instruction and the work of training the men to sell industrial appliances is not difficult.

With regard to remuneration, they should be paid in proporition to the consequent gas sales. These being larger than in the case of domestic appliances, they should be paid accordingly pro rata.

Premiums on Coins

This is a plan for giving people discounts on purchases, under the guise of paying premiums on certain coins. After deciding whether to let the premiums apply to all purchases or only to certain displayed items, put up in the window, in front of the display, a list of the coins you will accept at more than face value, and the price you place on them. Make it plain that you do not buy the coins for money, but accept them on purchases at the prices mentioned. Go through your cash register and note what dates are in circulation, but not too common, and make your offers on those. It may be desirable to ask the bank to help you about this. List among the rest a good many actually rare coins at the prices cataloged on them by such people as the Scott Stamp & Coin Company, New York.

When a man sees in your window an announcement that you will pay $2 in trade for $1 of a certain date, or 10 cents for certain pennies, he stops and looks over his change. The women investigate the matter, too. Get the schedule adjusted before starting, so that you will not have to back down on anything. Make it a rule that only a certain percentage of the purchase price of an article can be paid in premium-priced currency. Arrange the schedule so you will know in advance what is the greatest discount that can be taken by its means.—*Electrical Merchandising.*

Training Employees by Motion Pictures

(*Continued from page 575*)

picture exhibitions. How can a hall be hired for the purpose? What is it going to cost?

The above are only a few of the questions that will flash through the gas man's mind as he reaches this stage of the arficle, but before I am through I hope at least I will have satisfactorily answered his various questions.

The gas company might search for days to find the subject it requires, and then find the reels too expensive to rent. This is where the Bureau of Commercial Economics, of Washington, D. C., is ready to help it out. Its motion-picture library contains reels on practically all gas and allied subjects.

The bureau is prepared to loan any of its films through the various co-operating universities, which act in a service station capacity, to any gas company requiring the use of them. No charge is made for the service except the transportation charges from and to the distributing center. It is a condition that the reels are shown on a standard projector and the same operated by a careful and capable operator. The bureau expects a report of the films shown and the number of people who see them. The bureau further stipulates that no admission fees be charged.

The booklet gotten out by the bureau, besides giving a partial list of

the available subjects, tells how the bureau is maintained:

Policies of the Bureau

"The bureau is maintained through contributions and annuities.

"Contributions are invariably voluntary, and no one is authorized to solicit the same.

"No film is shown for a money consideration under any circumstances, nor is preference given a film or a subject on account of a contribution.

"Contributions are received and acceptable to an amount sufficient to cover transportation charges, insurance and upkeep of the films, and the expenses of administration, as the bureau is not operated for profit and has no capital stock.

"The surplus funds of the bureau will be used in the production of welfare films, first aid to the injured, including the resuscitation of the drowning and the emergency methods of rescuing imprisoned miners, and the awakening and development of civic pride and patriotic citizenship."

In describing the methods by which the bureau operates, the booklet says:

"Co-operation of the universities consists in displaying the pictures, thus affixing their seal of approval as to their character and quality, and then circulating them in their community centers to adult audiences who are in sympathy, as their own university stands sponsor, for which extension work many States make appropriations."

The bureau does not wish to encourage any gas company to engage in visual instruction, unless it feels it is a privilege and that substantial benefits may accrue, in which event the bureau will be glad to contribute films if a standard motion-picture projector of any well-known make is used and the same operated by a careful and capable operator.

"The bureau wishes to caution any organizations using films to strictly comply with the fire regulations obtaining in local communities and observe the laws relative to censorship, in the belief that better results accrue if collision with local authorities is avoided.

"Experience has shown that substantial support is given by local peace officers to this philanthropic work wherever effort is made to protect and save harmless those who seek information and enlightenment.

"The bureau requests that all communications from manufacturers and others furnishing films, relative to the display of films or attendance, be forwarded to its office in Washington for attention, as the bureau does not desire to have any hardships imposed on the institutions in connection with its work which the bureau can relieve.

"All applications to the bureau for its films are forwarded to the co-operating university from whose jurisdiction the request has come, as the bureau does not seek publicity for what it is doing, but prefers that such credit be given to the local institutions, in the belief that this will develop local civic pride and effort on the part of the public to encourage and support the movement. The bureau is quite willing to make its contribution on this behalf as an anonymous giver.

"The service of the bureau is also available at the present time in Canada, Latin American republics, India, China, Japan, Australia, New Zealand and South Africa, with titles and subtitles of all films in the language of the countries addressed."

The logical place in which to give motion-picture lectures is, of course, the motion-picture house. Aside from the lack of the necessary facilities in the average gas company's showroom, there is the expense to be considered. With a projection machine at $250, a fireproof booth at $65, a screen at $30, a case of carbons at $22, and various small accessories totalling $23, there is almost $400 invested in the initial equipment alone. In hiring the local motion-picture theater for the purpose, you will only be out the operator's time and the "juice"—probably not more than 50 cents an hour for both. Since you can show four reels in that time a weekly lecture for your sales force should not cost more than a dollar, including the expressage on the reels.

Disadvantage to Plan

The only disadvantage of the plan is that the motion-picture theater is generally at its busiest after your sales force is through for the day. To arrange a lecture between 11 and midnight would be feasible if you presented your sales force with complimentary tickets to the regular photoplay performance, and thus have them stay for the motion-picture lecture. This will probably appeal to them, because the entertainment will have put them in the "we are pleased with ourselves" mood. If, however, this is not practicable, why not have the sales force come an hour earlier in the morning and arrange for an early morning show at the local movie? If you give them a complimentary ticket to the evening show, they will probably not be so peeved for being compelled to rise an hour earlier.

Another thing the gas company must remember is that the labor problem will become worse instead of better as the war continues. It has already felt it more or less by voluntary enlistments and draft calls, and as the gas company will probably be forced sooner or later to hire any labor it can get, the gas company can at least train its sales force to the best of its ability. And the most direct route is the motion-picture.

Gas Heater for the Kiddy's Bath

A striking display that made instant appeal to mothers and all interested in the care of children, was shown by the Savannah Gas Company, Savannah, Ga. It represented a living room, floored with a rug of cheerful red. The background was buff, hung with ropes of evergreen and studded with clusters of red berries. In the center of the rear wall was a square of white enamel tiling, in which was a glowing gas heater—whose radiance engendered a feeling of warmth even to those outside the window. Before the blaze was seated the life-size figure of a young mother (a wax model would have been even more effective), and standing close to the heater, his hands outstretched to its genial warmth, was the nude figure of a chubby youngster of two or three—as though he had just stepped from his bath. At one side was a tall floor lamp, with a shade of old gold, and at the other a table, on which was a bronze lamp, with art-glass shade. Spread out in front on the floor, close to the glass, were toaster, waffle iron, pressing iron, coffee tureen and several small gas stoves, each with a little card lettered in script:

For Mother: Days are but footsteps,
years are but miles—
May yours lead through the future
with sunshine and smiles.

Breakfast Conveniences Demonstrated

The Rochester Railway & Light Company, Rochester, N. Y., have been carrying on a campaign that resulted in the placing of many breakfast conveniences and incidentally increasing the consumption of gas. In the first place they ran a series of advertisementts in the paper—a single utensil being featured in each ad. The first was a pancake griddle.

Don't Forget to Order a Pancake Griddle.

Everyone in the family—especially the children—loves pancakes. And never are they so good as when baked on a Vulcan griddle.

See Aunt Dinah bake them in our window to-morrow.

In the large window was a colored woman in sewing apron and red bandana handkerchief twisted about her head. She used a Vulcan griddle and baked the cakes, three at a time, which she served piping hot to the visitors, and their deliciousness was one of the best ads for the griddle and cleanly fuel.

The next ad called attention to the toaster:

Why You Should Have a Toaster.

Toasting over a coal or wood fire is a hazardous operation. The heat carries, and before you know it the toast is black and burnt.

Gas heat is uniform. By using a gas toaster the presiding genius of the household can satisfy the toast taste of any member of the family, and serve it piping hot. See it done to-morrow in our window.

As in the previous case the toast was prepared by an expert, and offered to all guests, "the proof of the pudding being in the eating."

A third ad run by this company was addressed to the mater-familias, and while written for the Thanksgiving feast, would be equally applicable to any home-gathering dinner.

Just to Remind You—

Be sure to get that gas range before the strain of preparing for a houseful of guests, and the demand upon time and temper is upon you. It will make your work in the kitchen so easy and pleasurable that you will be able to enjoy the festivities as much as or more than those who have no part in the preparation of the dinner. See the range demonstrated in our window to-morrow.

During the range demonstration bread, cake, rolls, pies and cookies were baked, and set out in tempting array, so that their crisp deliciousness could be seen by all.

W. B. STODDARD.

Empire Company Runs Unusual Series of Ads

Kansas City Office Explains Gas Situation by Newsy Articles Printed Every Day in 60 Papers

For more than a month the Kansas City office of the Empire Gas & Fuel Company has been issuing a series of advertisements explaining in news style the developments in the natural gas situation in Kansas. The series was prepared at the Kansas City office under the direction of R. E. Morrison, Doherty representative in that city, who distributed them to sixty newspapers. The advertisements have been appearing in practically all of the daily newspapers in the towns in which the Kansas Natural Gas Company, the Wichita Natural Gas Company, the Quapaw Gas Company and the Wichita Pipeline Company do business. Through these advertisements the Empire Gas & Fuel Company has been talking daily to a million and a half people.

Mr. Morrison reports that he has received letters from many editors complimenting the company on the advertising, and saying that it is an entirely new style. The editors also say that they know that the public is appreciating the attempt to describe the difficulties and hard labor necessary to bring a supply of natural gas to a city.

The series of advertisements began a little more than a month ago, and a new one has appeared in the sixty newspapers every day since then. One of the novelties of the advertising is the printing of a daily weather report immediately under the headline of the advertisement, which adds to its drawing power. An idea of the character of the advertising may be obtained from the titles of the advertisements, some of which follow: More Gas on the Way; Labor Shortage Is a Gas Problem; Pipe for New Gas Lines Was Scarce; A Small Army Laying New Lines; Cost of Gas Improvements; Pipe Line Through a Wilderness; Pipe Line Penetrates Hills; Two Hundred Miles in the Night to Speed Gas; Pipe a Man Can Crawl In; Ditching Machine a "Tank" of Peace; The Nerve Center of the Gas System: Telephone Wires Knit Together the Gas System; The Slumbering Devil in the Gas Main; A "No Man's Land" in Kansas; They Work Well Because They Eat Well; etc.

An example of the type of advertising used is the following, which is reproduced in the exact form in which it was sent to the sixty newspapers for publication:

No. Q.10 — For Publication — Thursday, Nov. 1, 1917, in papers on Quapaw Gas Company system only.

PIPE LINE THROUGH A WILDERNESS

Weather report.

(Copy for report to follow by wire on day of publication.)

The wild, rocky, forbidding hills of the Osage Nation offer a stubborn resistance to the men who are laying new pipe line to bring you more gas.

The line from the Osage-Hominy field, which starts southwest of Bigheart, Okla., will pass through rugged country for practically its entire length—a distance of fifty miles. The line does not dodge the hills; pipe is too scarce for that. It passes over them, often reaching a grade of 75 per cent. It goes up one hill and down, only to approach another, which must be passed in a similar way.

They are hills of flint rock mainly, over which ditches can be opened only by blasting. Tough Jack oaks, which must be cleared away before dynamiting begins, add to the construction gang's difficulties.

Increased Rates at Carlisle, Pa.

An increase in gas rates, which went into effect Dec. 15, has been announced by the Carlisle Gas & Water Company. The new rates are from 10 to 20 cents per hundred higher and are due to the high cost of supplies, officials say. A feature of the new charges is a meter fee of 25 cents, payable quarterly, and the establishment of minimum charges.

News of the Gas Industry

Joint Meeting of Red Jacket and Laurium Councils Favors Rate Increase

The Red Jacket and Laurium, Mich., councils, at a joint meeting in the Laurium council chamber recently, considered informally the petition of the Calumet Gas Company for permission to temporarily raise the rates charged for fuel and lighting gas, and reached a tentative agreement to grant the full increase requested, boosting the net rates from $1.25 to $1.60 per thousand cubic feet of gas, the gross charge being $1.75 per thousand cubic feet.

The formal action putting the increased rates in effect will be taken by the councils at their regular January meetings and the charge probably will be made effective Feb. 1. In extending the increased rates, the councils will make full provision for terminating the arrangement at any time the village officials see fit.

A statement presented to the municipal heads shows that the company in its operations last month sustained a loss of $915.22, and the same amount of business as done last month figured on the new rates would still involve a slight loss. After full discussion the trustees of the two villages agreed that temporary relief is necessary.

Wisconsin Company Authorized to Charge $10 a Ton for Coke

The Wisconsin Gas & Electric Company, Racine, Wis., is authorized to make a charge of $10 a ton for its coke, according to a ruling made by State Fuel Administrator Fitzgerald at Milwaukee recently. That official interpreted the order of the National Fuel Board as meaning that the gas companies are entitled to a price equal to that of hard coal, which is $10 a ton.

The coke price in Racine has been under investigation for some time by the local fuel board, of which F. Lee Norton, chairman of the Racine County Defense Council, is the head. He received a communication some time ago in which he was asked to make an investigation of the coke price in Racine, as it was believed to be excessive.

British Association Welcomes Gas Men in the Service to England's Hospitality

The following item, appearing in the Nov. 27 *Gas Journal* (London), evidences a hearty welcome to the many gas men who are now in the varying stages of preparation to go "over there":

"W. M. Mason, secretary of the British Commercial Gas Association, advises us of a kindly thought which has been given effect to by the forwarding of the following cablegram to Louis Stotz, secretary of the National Commercial Gas Association of America: 'Please notify your members that if any coming to England on service will call on gas manager where stationed or secretary or chairman in London, members here will gladly render any friendly service in their power.' Mr. Mason and the B. C. G. A. are certainly amply justified in their confidence that gas managers up and down the country would gladly welcome the opportunity of extending friendly greetings and service to any of their colleagues from across the Atlantic."

Increase in Rates Announced at Worcester, Mass.

Worcester gas is increased 10 cents a thousand feet. This fact is made known to the users of gas in Worcester by Willard B. Osborne, president of the Worcester Gas Light Company, who stated that increases in costs of labor and of materials used make it imperative.

The increase will be placed on all bills issued after Jan. 1. When normal conditions are again restored the company will revert to the old form of prices.

Bills will be rendered at 10 cents a thousand above the rates, subject to discount of 10 cents a thousand for payment before day indicated on bill.

Increase Asked at Elkton, Md.

The Elkton (Md.) Gas Light Works has filed with the public service commission a notice asking for an increase of its gas rate 50 cents per 1,000 cu. ft.

Situation Handled Efficiently When Holder Goes Flat at Norfolk

Combination of Circumstances and Repairs Necessary on Apparatus Are Cause of 10-Hour Shut-Down of Gas Plant

An unusual occurrence which recently took place at Norfolk, Va., was most admirably managed by the City Gas Company, of Norfolk, when their gas supply suddenly gave out. We were informed of the circumstances by W. G. Van Gemmingen, general superintendent of the works, in the following interesting letter:

"Your letter of Dec. 7 has been referred to the writer. Our trouble was caused by a combination of circumstances.

"Government activities in this vicinity have greatly increased the population, this, together with a shortage of coal, has increased the demand for gas to a point where our send out is 33 per cent greater than it was at this period last year.

"The quality of our generator fuel has decreased the efficiency of our water gas machines about 25 per cent.

"Repairs became necessary on our new machine in the middle of a cold spell, which had depleted our storage supply of gas. The old machines, which were put into service to take the load, proved inadequate, owing to a particularly poor run of coke, from one of a number of small shipments of coal purchased wherever we could find any for sale.

When it became apparent that our gas supply would become exhausted before the machine undergoing repairs could be put into service again, the pressure on our high-pressure system was decreased to a point barely sufficient to keep the pilot lights burning. The pressure on the low-pressure mains was reduced to 3 in. (we normally carry 4 in.). These precautions looked as though they would pull us through our night load, and did carry us past the hour when the load normally begins to decline. Owing to the cold weather and the number of heaters in use the load continued abnormal, and the high-

pressure system was cut off in hopes of saving the low pressure. This helped a little, but the demand was too great, and the holder went flat.

"Gas was turned off the city, an advertisement inserted in the morning paper, and the telephone company requested to notify all consumers who called up that gas would not be turned on until 10 o'clock a. m. the next day, and caution everyone to make sure that all burner cocks and pilots were turned off. Slides bearing the same warning were flashed on the screens of all the prominent moving-picture houses. Our entire service force were set to work to see that the pilot lights on all automatic water heaters were turned off.

"It would have been possible to turn gas on the mains in a couple of hours after it was shut off, but 10 o'clock the following morning was decided upon as being safer, giving time for the public to receive our warning and instructions. It also gave us an opportunity to store sufficient gas for the situation.

"Aside from the inconveniences caused the public and the company, no serious consequences resulted."

Many dangerous situations have often resulted from such occurrences as this. But the safe time limit for giving warning to consumers which was set showed the good judgment of this company's management.

Rate Increase Asked for Chehalis and Centralia, Wash.

M. C. Hancock, manager of the North Pacific Public Service Company, of Chehalis and Centralia, has filed notice with the mayor and city commission of Centralia that the company had petitioned the State Public Service Commission for an increase in gas rates. Mr. Hancock said that owing to the greatly increased cost of production the company has been unable to meet interest on its bonds. The proposed increase provides for a minimum of 75 cents per month instead of 50 cents as now. The increase is gradual up to 15,000 ft. or more, where there is no increase.

THE EAST OHIO GAS COMPANY recently filed a certificate with the Secretary of State increasing its capital stock from $10,000,000 to $35,000,000. Of this increase $10,000,000 is preferred stock. The State received a fee of $25,000 for allowing the increase.

Red Wing Company Increases Rates, Regardless of Court's Order

Disregarding the temporary injunction order issued by Judge Albert Johnson of the District Court, the Wisconsin-Minnesota Light & Power Company, Red Wing, Wis., has proceeded to carry its schedule of increased gas rates into effect. City Attorney Hall informed the council recently that the public service corporation had appealed to the State Supreme Court from Judge Johnson's order and that the case would be argued in St. Paul on Jan. 10. The following notice is being sent out to all consumers of gas by the corporation: "The public service commissions, generally, have granted an increase in the form of a surcharge to be effective during the period of the war. Several public service companies in this State are following the same application of our surcharge.

"This company is also forced to make an increase of 10 cents per thousand cubic feet of gas and 5 cents additional to minimum bills, effective on all billing after Dec. 1, 1917, and that such surcharge, as this increase represents, will be refunded providing the decision of the courts is unfavorable to this company. The increase is only a partial relief and the company is required to bear a considerable portion of the increased operating costs."

Our Loans to Our Allies

The loans made by the United States to the Governments at war with Germany are arranged by Secretary of the Treasury McAdoo and submitted to the President and made with his approval.

The Secretary states that his judgment in making these loans is determined largely by the monthly requirements of the applicants. The different powers, through their duly authorized representatives, make their representations as to their necessities for carrying on the war, and after discussion the various amounts are arrived at.

These loans, says the Secretary, are essential for our own protection, not only for our protection in a military way, but for our economic protection and welfare. The production of the United States has been speeded up and greatly stimulated. We are producing more than our own needs, and our own economic protection and welfare demand that we sell much of our products to our Allies. To accomplish this we must extend these credits to enable them to buy our products.

Their commercial salvation is an essential part of their effectiveness in the war, and their commercial well-being demands that their export trade be maintained in a considerable measure. They must keep their civil population engaged to the extent necessary to sustain their industrial and economic existence. It is sound economic policy on our part to assist them in maintaining their industrial life and economic welfare.

Very little of the money loaned to our Allies, the Secretary states, goes out of the United States. Most of it is spent right here for war materials and foodstuffs. The money we are advancing is not a contribution; it is a loan, on which they will pay interest and which ultimately will be repaid in full. Our Allies are looked upon by us as solvent peoples, without ready money, but with perfectly good credit.

Their expenditures of this money in this country are supervised by us. Their purchases are made with the advice and assistance of our War Industrial Board. This system not only protects the borrowing ally, but prevents competitive bidding against the other Allies and the United States itself, and obtains for the borrower the same prices, the same terms, and the same treatment our own Government demands in making purchases.

When one remembers that the loans made to our Allies enable them to do the fighting that otherwise the American army would have to do at much expense, not only of men but of money, money which would not be returned to us and lives that could never be restored, the wisdom of our policy in financing our Allies is plain to everyone. It is not only a duty to them that we are performing in lending them part of our great wealth; it is a great duty we are performing to our soldiers and sailors and our nation in making our Allies powerful and effective, thus lessening the work and danger and suffering for our own men and in bringing the war to an earlier close.

THE LONE STAR GAS COMPANY, Fort Worth, Tex., has declared a regular quarterly dividend of 2 per cent, payable Dec. 30 to stock of record Dec. 22.

Waukesha Company Granted Rate Increase

The Wisconsin Rate Commission recently granted the Waukesha Gas & Electric Company an increase in gas rates. The company petitioned for an increase last summer and on Aug. 10 a member of the commission held a public hearing on the petition in Waukesha. Upon the testimany adduced at the hearing, the commission has rendered its decision, which practically grants all that the company asked for.

The increased rates, which the order of the commission places in effect since Dec. 1, and which are to continue until June 30, 1918, unless sooner altered, are as follows:

First 10,000 cu. ft. per month, $1.45 per thousand; next 15,000 cu. ft. per month, $1.25 per thousand; next 25,000 cu. ft. per month, $1.15 per thousand; next 50,000 cu. ft. per month, $1.05 per thousand; over 100,000 cu. ft. per month, 90 cents per thousand; over 200,000 cu. ft. per month, 80 cents per thousand.

As compared with the rates heretofore in effect, the new rates show an increase of practically 15 cents per thousand all through the schedule.

The commission's report makes no references to the complaints regarding inferior quality which were received, and appears to base the right of the company to an advance in rates upon the proposition that coal is very high in price, labor cost has materially advanced, and other conditions entering into the production of gas are abnormal.

15 Cent Rate Increase Effective Jan. 1 at York, Pa.

A raise of 15 cents in its service charge is included in a new tariff of rates for the supply of gas for the next year filed by the York (Pa.) Gas Company with the State Public Service Commission. The rates are to be effective for one year. The gas company agrees with the commission to reduce the rates at the end of one year, on Dec. 31, 1918, in accordance with any reduction in the cost of materials or labor. A total of 10,500 customers will be affected by the increase, which puts the service charge at 25 cents a month per customer.

Cairo Company's Application for Rate Increase Continued for Hearing Jan. 3

When the case of the Cairo (Ill.) City Gas Company, on the application for permission to increase its gas rates in Cairo, recently came up for hearing before Commissioner Walter M. Shaw, of the State Public Utilities Commission, it was continued until Jan. 3, by agreement of counsel on both sides.

First Increase Insufficient, Second Asked at Van Wert, O.

Officials of the Van Wert Gas Light Company appeared before the council at its meeting recently and made a request for another rate increase. The new rate will be $1.60, less 10 cents discount for payment of bills by the 10th of the month, making $1.50 net.

The prices of all materials used in the manufacture of gas have increased so rapidly, they told the council, that this raise is necessary to allow the company to meet running expenses. The council has taken the matter under advisement, and a committee is investigating whether or not this increase is just.

This will be the second raise in price made by the gas company within a few months. From a rate of $1 net, the price was raised last summer to $1.20. This raise was not sufficient, the company says, to operate the organization.

New Franchise Granted the Dallas Gas Company

By a vote of 3 to 2, the city commission recently passed on third and final reading an ordinance granting a franchise to operate and maintain a gas distribution company to the Dallas (Tex.) Gas Company. Commissioners Cason and Winfrey opposed the granting of the franchise.

Commissioner Cason cast his vote against the franchise, for the reason that he believes the people of Dallas should vote on a service-at-cost franchise.

The commissioner also explained that he understood the Dallas Gas Company wanted the franchise hurried through for the reason that officials of the company desire to make financial arrangements for extensions.

Two provisions were changed in the franchise before it was submitted for final reading. A provision placing the discount for prompt payment of bills at 10 per cent was inserted at the instigation of members of the city commission. One paragraph, dealing with the auditing features, was stricken out at the request of Grover C. Bland, auditor in the office of Supervisor of Public Utilities Baker.

Fostering the Initiative of Employees in Small Towns

The vice-president of an electric light and power company operating in a number of small and medium sized cities in the Middle West recently advanced the opinion that paying men on a straight salary basis was about as poor a plan of payment as could be worked out for companies of the character with which he is familiar. Taking the case of the local manager of one of his own towns for example, he analyzed the situation as follows: "Suppose I hire a man as local manager for D——. When I send the man out to this small town I tell him to endeavor not to absorb the easy-going lackadaisical spirit of the small town. I tell him to try to live above that plan and, even though every other merchant in the city sits in his place of business and waits for business to come to him, to get out and do a little hustling and make everybody see that he is a real live wire. Now, if I should send him down with those instructions and with the assurance that he will be paid a fixed salary, instructions may carry him along for a while, but the effect will not be permanent. On the other hand, if I send him down with the instructions and with the assurance that he will be paid a certain fixed salary plus a commission on all of a certain class of business turned in, it is pretty much of a certainty that the man, in addition to doing his job, will put in some extra hours endeavoring to close up the class of business which will bring him a commission.

"Our local managers are paid from $75 to $150 a month. In addition to this, they are usually given an opportunity to earn about $1 per horsepower connected on

all new power business turned in. Power business was selected as the particular class of service upon which we should pay commissions in our towns, since there was great need of building up the day load. We do not have this plan working as smoothly as we should like in all places, but in the main it has been found that it keeps the small town employees more interested in themselves and in the welfare of the company."—*Electrical World*.

Four Citizens of Richmond, Ind., Take Over Natural Gas Plant

The Richmond (Ind.) Light, Heat & Power Company recently issued circulars stating that they would close down on Dec. 1, claiming that this was due to the advance price in coke and oil. They were furnishing gas to consumers at $1.25 and $1.50 per thousand feet, a rate established when the plant began operation over twenty years ago.

Four citizens of Richmond, Joshua Davis, G. W. Pigman, Allie Bertch and William Kennedy, agreed to assume charge of the plant until further arrangements could be made, assume all liabilities, with the price raised to $2 per thousand feet, from Dec. 1. The public utilities commission has been asked to grant this price. These men will take charge of all collections from consumers of gas for cooking, light and heat.

Worcester Company Selling Coke to Relieve Coal Situation

The Worcester (Mass.) Gas Light Company recently started a sale of coke which had previously been withheld for an emergency. The company is not getting any more than its normal supply of coal, but wishes to help relieve the coal situation.

Although the price of coke has been fixed by Fuel Administrator Garfield as the same as hard coal, the company is selling it at $1 less per ton than the Government price. The supply is limited.

THE TAUNTON (MASS.) GAS LIGHT COMPANY has announced an increase in rates of 10 cents, effective Jan. 1, 1918.

Annual Report of Director of National Bureau of Standards

Scientific work of unusual volume and interest is described in the annual report of the Director of the Bureau of Standards, just issued. The work ranges from the testing of clinical thermometers to the publication of national electrical and gas codes. Since the war began all branches of this scientific bureau have been conducting researches on technical problems of military application. The regular work, however, has not been overlooked. In fact, the variety and importance of the results obtained during the year in its scientific and technical researches are of unusual interest.

The standardization work has comprised the making of 155,000 tests of weights, measures, measuring instruments and materials; the promulgation of a new standard screen scale for unifying the sizes of industrial sieves; the new gage standards laboratory for testing munitions gages; investigation of the accuracy of leather measuring instruments; standardizing blood-counting apparatus, including new specifications based on researches on the errors of such apparatus; the standardization of master scales in twenty-one States and of the master scales of the American Railway Association; extension of the work on altitude measuring instruments to include all varieties of aviation instruments; and a large number of special researches in physics of materials.

The optical work of the bureau is of special interest, and includes the precise measurement of wave lengths of various colors for use as standards in optical work, red and infra-red photography as applied to the photography of the spectra of laboratory materials, and of the stars and the sun; optical methods of finding impurities in materials; sugar determination by optical means; determination of sugar content of molasses; industrial standards of color for certain industrial materials; standardization of optical apparatus, such as camera lenses, field glasses, range finders and similar equipment; analysis of radiation with respect to energy distribution.

The chemical work of the bureau included the development of new methods of analyzing steel and other materials; study of platinum purity; co-operation upon military researches involving chemistry, such as the preparation of special gases, combustion gas detectors; and chemical researches and materials testing in great variety and quantity for the Government.

The bureau's technologic work comprises a wide range of researches into the special technologies of the metals, cement, clay, clay products, lime, stucco, paints, roofing materials and miscellaneous materials, such as paper, textiles, rubber, leather, glass and the like. The results are published by the bureau in a series of about twenty technologic papers issued during the year.

The regular growth of the bureau and its special expansion on account of war work has resulted in the construction of several new laboratories and an increase in the staff of about 60 per cent.

To all interested in the applications of science to industry and to warfare the annual report of the Bureau of Standards will be of particular interest.

Massachusetts Commission Approves Purchase of Gas at 29.5 Cents

On the petition of the Boston Consolidated Gas Company for the finding required by the State law relative to the purchase of gas by that company from the New England Fuel & Transportation Company under a contract between the two corporations dated Sept. 27, 1917, the Massachusetts gas and electric light commissioners have found, after a public hearing and "in view of existing abnormal conditions," that the price named in the contract—viz., 29.5 cents a thousand cubic feet—"is less than it would cost the Boston Consolidated Gas Company to make its gas in works of standard type, properly equipped, suitably situated and of sufficient capacity to make all the gas required by the whole district supplied by said company, and said contract is hereby approved."

The contract sets forth that the fuel company agrees to sell and the gas company to buy all gas having a heat value of not less than 575 B.t.u. produced by the fuel company at its works in Everett beyond the amount which the fuel company may need in connection

with the operation of its manufacturing plant. The gas shall be gas which has not been purified of carbon dioxide and of sulphur impurities. In case the cost of purification exceeds ½ cent per thousand cubic feet, an allowance shall be made for such excess cost. If during any seven consecutive days the average heat value falls below 575 B.t.u., the fuel company shall pay the gas company, as liquidated damages, $1,500.

The heat value shall be determined after the gas has been purified; likewise, the gas shall be metered after purification. The fuel company is given the right at all reasonable times to test the heat value of the gas supplied and the apparatus.

The agreement calls for the delivery of not less than 5,000,000 cu. ft. per day. If the Government requires the removal or production of toluol, the fuel company is relieved from the obligation of the contract, both as respects the heat value and the amount to be furnished; but the heat value shall not fall below the standard to be set subsequent to the making of the contract.

The heat value recently named by the commission calls for a minimum of 528 B.t.u.

City Gas Company Announces Increase Effective Dec. 20

An advance in the price of gas of 20 cents per 1,000 cu. ft., effective Dec. 20, was officially announced by the City Gas Company, of Norfolk, Va. This will raise the present price of $1.10 per 1,000 cu. ft. to $1.30. A 10 per cent discount is allowed if bills are paid in full within ten days after being rendered.

In its announcement the City Gas Company says that the steady increase in cost of raw materials and labor entering into the manufacture of gas has reached the point at which the company has for some time been furnishing gas at less than cost. The proposed advance of 20 cents covers only about one-half of the increased cost, the company's announcement says. The conditions necessitating the advance have been brought about by the war, it is pointed out.

Increased Rates Sought at Stoughton, Wis.

Greatly increased costs of material and labor which render it impossible to operate the plant profitably under the existing schedule of rates, are the reasons given by the Stoughton (Wis.) Light & Fuel Company for its recent application to the State Railroad Commission for authority to increase its rates. The proposed schedule which the gas company desires to put into effect provides for a meter rate of $1.50 per thousand cubic feet, less a discount of 10 cents per thousand for payment by the 10th of the month, as against the present rate of $1.35, less a discount of 10 cents per thousand cubic feet. A hearing in this matter before the railroad commission was held on Friday, Dec. 21.

Societies and Associations

The Gas Employees' Association, of the Pittsfield (Mass.) Coal Gas Company held a meeting Thursday evening, Dec. 6, in the gas office building at 7 o'clock, at which about fifty members were present. The excellent supper that had been prepared by the refreshment committee was relished by all and made way for a new feature in the association life, namely, group singing. This feature has become very popular of late, both in civil and military life. Watson Davis assisted in the leading and Clarence A. Waugh presided at the piano. At the regular business session that followed the supper the members voted to try and carry on their business without any extra assessment on the members, as was proposed at the previous meeting. Jesse R. Stetser, assisted by H. B. Palmer from the Welsbach Company factory at Gloucester, N. J., gave an illustrated talk on a trip through the big new million-dollar plant of his company. As a climax to the whole program everyone attending was given an opportunity to win a rather noisy little pig. This feature provided a great amount of merriment. It was finally won by Sam Billotta, of the distribution department of the gas company.

Personal Notes

Thomas Eugene Byrne, vice-president and chief engineer of the Kings County Lighting Company, Brooklyn, N. Y., died Dec. 14 at his home, 51 Montgomery Place. Mr. Byrne was born in New York City, and his parents went to Brooklyn when he was two years old, where he lived up to the time of his death. He was educated in St. Paul's parochial school and St. Francis College. As a boy he entered the employ of the old Citizens Gas Light Company, of Brooklyn, and became its chief engineer, until in 1895 it was consolidated with the Brooklyn Union Gas Company, and he became chief engineer of the combined companies. In 1900 he organized the Kings County Lighting Company, became its chief engineer and general manager, and later was elected vice-president, holding the three positions until the time of his death. He had full control of the lighting facilities of the company, including the manufacturing and distribution departments of the business. Mr. Byrne made gas lighting and manufacturing his life work, and was widely known for his expert knowledge of every detail of the business. Altogether, he had been in the gas business for fifty-five years, although he had not been active for the past two or three years. In the midst of his constant and exacting activities in his chosen field, Mr. Byrne found time for politics, and was an influential Democrat in the various districts. Although active in politics and often urged to accept office, he always declined, preferring to remain in business. Mr. Byrne was a member of St. Francis Xavier's Roman Catholic Church, the Emerald Society, the St. Patrick Society of Brooklyn, the American Gas Institute, the Illuminating Engineering Society, and was one of the organizers of the Society of Gas Lighting. He was a member of the Montauk Club, the Cathedral Club and of Long Island Council, No. 173, Royal Arcanum.

J. J. Molyneaux has been appointed treasurer and general auditor of the Northern States Power Company properties.

L. E. Cass has recently been elected general manager of the sales department of the Mohawk Gas Company and the Schenectady Illuminating Company, both of Schenectady, N. Y., and will also assume the duties of manager of the coke department. Mr. Cass was formerly purchasing agent for these two companies.

Lee Chamberlain has been appointed secretary and director of the Lansing (Mich.) Fuel & Gas Company, succeeding Harry L. Bryant, who recently resigned. Mr. Chamberlain was formerly commercial manager of the company.

H. R. Frost, formerly treasurer and general auditor of the Northern States Power Company, Minneapolis, Minn., has been appointed assistant general auditor of H. M. Byllesby & Company, with headquarters at Oklahoma City.

The Dayton (Ohio) Gas Company has filled the vacancies on their board of directors, caused by the resignation of George F. Goodnow and Harry Loy, by naming Carl Loy, a Dayton commission merchant, and John P. Breen, proprietor of the Phillips House, Dayton, as directors.

The Lovekin Water Heater Company, manufacturers of gas water heaters, with offices at 39 Laurel Street, Philadelphia, Pa., is making a number of changes in its sales department, W. D. Peck and H. G. Peck being no longer connected with the company. Despite war-time conditions the company reports an exceedingly busy year, and looks forward to making even larger strides in 1918.

Paul Ober, of Crystal Lake, has succeeded H. R. Carpenter as manager of the Western United Gas & Electric Company's plant at Harvard, Ill.

Edward Sugrett, of Aurora, Ind., has recently been appointed superintendent of the Wilmington (Ohio) Gas Light & Coke Company.

J. H. Schmidt has been appointed auditor of the Muskogee (Okla.) Gas & Electric Company, succeeding W. R. Emerson.

W. R. Emerson, formerly auditor of the Muskogee (Okla.) Gas & Electric Company, has been appointed general auditor of all Oklahoma Gas & Electric Company properties, with headquarters at Oklahoma City.

The Western Gas Construction Company, of Fort Wayne, Ind., in increasing its operating forces in all departments. Some of the men added to the machine shop recently are: Cordy A. Michael and Albert C. Roehm, benchmen; Otis Griffith and Oscar R. Smith, machine hands; Leonard Loffi and Paul Clanser, machinists; Jacob B. Zuber, machinist's helper, and James Pierce, drill press operator. J. C. Fulliman is foreman of the machine shop, and will be in charge of the new men. Alex Crowe has been appointed superintendent of the foundry and machine shops.

New Incorporations

The Anderson City Gas Company, Columbia, S. C., was commissioned recently by W. Banks Dove, Secretary of State. The proposed capital stock is $10,000. It will conduct a general gas business. The petitioners are James H. Morris, Philadelphia; Frederick E. Lyford, New York, and Charles C. Dickinson, East Smithfield, Pa.

The Corinne (Utah) Oil & Gas Company is the name of a corporation recently organized to develop the gas and oil products in Box Elder County. The company was organized under the laws of Utah, with authorized capital of 2,000,000 shares at a par value of 10 cents per share, fully paid and non-assessable. The officers of the company are: W. F. House, Corinne, president; Charles F. Lloyd, Jackson, Mont., secretary and treasurer. The directors are: John E. Shipman, Salt Lake City, and N. H. Gramling.

James O. Hamilton Oil & Gas Company, Indianapolis, was recently incorporated with a capital of $50,000, to prospect for, drill for oil and natural gas. Directors, James O. Hamilton, Alexander Jacobstein, Menno S. Liechty, Daniel C. McKenzie and Everett C. Arnold.

Financial Notes

The Columbia Gas & Electric Company's earning statement for October shows very satisfactory conditions. Net income after rentals for the month is equal to about five times the interest charges on the first mortgage 5s, and for the period of ten months ending with October to about six times.

The Consolidated Gas, Electric Light & Power Company, of Baltimore, Md., earned in its last fiscal year ending June 30, 1917, 15.16 per cent on its capital stock, or nearly twice its rate of dividend. Earnings for the four months ending Oct. 31, 1917, show very substantial increases over the like period in the fiscal year. The condition of the company's earnings for the last four months ended Oct. 31, 1917, as compared with the earnings in like months for the three years prior thereto is shown in the following table:

July 1 to Oct. 31	Net Earnings	Increase
1917	$1,340,975	$160,231
1916	1,180,744	98,036
1915	1,082,708	52,277
1914	1,030,431	.....

The East Ohio Gas Company has called for redemption at 105 and interest on Jan. 1, 1918, the $15,906,000 5 per cent bonds due July 1, 1939. The total issue had been $18,906,000, but $3,000,000 had been retired by the sinking fund. The bonds were offered in 1910 at 98 and interest.

The Pacific Gas & Electric Company, for the ten months to Oct. 31, reports gross earnings of $16,296,963, increase $963,702; total income, $16,743,884, increase $1,056,510; net after taxes, $6,266,676, decrease $399,394; surplus after charges, $2,699,708, decrease $589,743. October gross, $1,619,738, increase $78,105; total income, $1,672,175, increase $105,769; net after taxes, $189,404, decrease $94,933; surplus after charges, $128,507, decrease $19,480; balance after preferred dividends, $4,571, decrease $126,054.